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DISEASES OF THE SKIN

THE BOSTON
Medical & Surgical
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Plate I.

Fig. I

Fig. II.

Fig. III

E. Burgess del. et ch. lith.

PLATE I.

Fig. 1.—Ringworm of the Scalp.

Fig. 2.—Alopecia Areata.

Fig. 3.—Lupus Erythematosus of Scalp.

DISEASES OF THE SKIN

AN OUTLINE

OF THE

PRINCIPLES AND PRACTICE

OF

DERMATOLOGY

BY

MALCOLM MORRIS

SURGEON TO THE SKIN DEPARTMENT ST. MARY'S HOSPITAL, LONDON; CORRESPONDING MEMBER OF THE K.K. GESELLSCHAFT DER AERZTE IN WIEN, OF THE WIENER DERMATOLOGISCHE GESELLSCHAFT AND OF THE SOCIÉTÉ FRANÇAISE DE DERMATOLOGIE.

With 8 Chromo-Lithographs and 17 Woodcuts

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PREFACE.

In the present work the object I have tried to keep in view has been to set forth the clinical facts, and the principles of treatment of skin diseases based on the results of modern research as to their causes. The work is essentially clinical and practical in its scope, and for more extended details of morbid anatomy the reader is referred to larger treatises on the subject, such as Crocker's *Diseases of the Skin* (second edition), and the French translation of Kaposi by Besnier and Doyon, with the translators' notes; also to the many excellent monographs that have been published in the *British Journal of Dermatology*, and in the French, German, American, and Italian special periodicals. Those tropical diseases of which I have no personal knowledge have been treated of in a very brief manner; but references have been given to original authorities on these subjects which will enable the reader to obtain such fuller information as he may require. To Mr. Jackson Clarke, F.R.C.S., Curator of the Museum of St. Mary's Hospital Medical School, I am indebted for valuable assistance in certain pathological portions of the work. As far as possible the names

of the authors quoted have been given in the text, but if any are omitted, it is unintentional, as it is my desire to give credit where it is due. The chromo-lithographs have been executed from original drawings by Mr. Burgess from cases under my own care, and I have much pleasure in expressing my thanks to him for the care and skill he has expended on them. To Mr. Berjeau also I am indebted for the artistic manner in which he has produced the woodcuts.

8, *Harley Street*,
November, 1893.

CONTENTS.

PAGE

CHAPTER I.

PATHOLOGY OF THE SKIN 1

CHAPTER II.

CLASSIFICATION 20

CHAPTER III.

PRINCIPLES OF DIAGNOSIS 25

CHAPTER IV.

AFFECTIONS OF THE SKIN DEPENDENT ON NERVE DISORDER—HYPERÆSTHESIA—PRURITUS—ANÆSTHESIA—URTICARIA—PRURIGO 48

CHAPTER V.

AFFECTIONS OF THE SKIN DEPENDENT ON NERVE DISORDER (*continued*)—ERYTHEMA—PELLAGRA—ACRODYNIA—PURPURA—PELIOSIS RHEUMATICA—LUPUS ERYTHEMATOSUS—ROSACEA 68

CHAPTER VI.

AFFECTIONS OF THE SKIN DEPENDENT ON NERVE DISORDER (*continued*)—DERMATITIS HERPETIFORMIS—HERPES GESTATIONIS—IMPETIGO HERPETIFORMIS—CHEIROPOMPHOLYX—PEMPHIGUS—HERPES 100

CHAPTER VII.

AFFECTIONS OF THE SKIN DEPENDENT ON NERVE DISORDER (*continued*)—SCLERODERMIA—MORPHŒA—

PAGE

Lichen—Leucodermia—Raynaud's Disease—Dermatitis Repens—Diabetic Gangrene—Hysterical Gangrene—Glossy Skin—Atrophy of the Skin—Charcot's Bed-sore—Trophic Ulcers—Morvan's Disease—Syringomyelia—Œdema 132

CHAPTER VIII.

Affections of the Skin dependent on Nerve Disorder (*concluded*)—Treatment 152

CHAPTER IX.

Artificial Eruptions 178

CHAPTER X.

Eczema 208

CHAPTER XI.

Eczema (*concluded*)—Treatment 242

CHAPTER XII.

Pityriasis—Pityriasis Rubra—Pityriasis Rubra Pilaris—Pityriasis Rosea... 256

CHAPTER XIII.

Psoriasis 271

CHAPTER XIV.

Local Inoculable Diseases—Animal Parasites ... 288

CHAPTER XV.

Local Inoculable Diseases (*continued*)—Vegetable Parasites 303

CHAPTER XVI.

Local Inoculable Diseases (*concluded*)—Other Microorganisms 327

PAGE

CHAPTER XVII.

General Inoculable Diseases—Scrofulodermia—Tubercular Ulcers—Verruca Necrogenica—Lupus Vulgaris 355

CHAPTER XVIII.

General Inoculable Diseases (*continued*)—Syphilis ... 388

CHAPTER XIX.

General Inoculable Diseases (*concluded*)—Leprosy—Yaws—Glanders 417

CHAPTER XX.

Diseases of the Skin-glands and Epidermic Appendages (Hair and Nails) 444

CHAPTER XXI.

New Growths—Benign 480

CHAPTER XXII.

New Growths (*concluded*)—Malignant 521

CHAPTER XXIII.

Malformations 540

Index 547

LIST OF ILLUSTRATIONS.

PAGE

HAND OF A PERSON AFFECTED WITH DERMATITIS HERPETIFORMIS 101

"ESSENTIAL SHRINKING" OF CONJUNCTIVA CONNECTED WITH PEMPHIGUS OF SKIN AND MUCOUS MEMBRANE OF MOUTH... 112

IODIDE ERUPTION 189

ANIMAL PARASITES 290

VEGETABLE PARASITES 304

NODULAR LEPROSY 420

PINNA OF THE EAR OF A PERSON SUFFERING FROM NODULAR LEPROSY 422

CLAW-LIKE HAND IN NERVE LEPROSY 427

CHRONIC GLANDERS 442

TRICHORRHEXIS NODOSA 467

LARGE HAIRY MOLE AND SEVERAL BENIGN FIBROUS TUMOURS COVERING THE "BATHING-DRAWERS REGION," AND SEVERAL OUTLYING MOLES 493

ANGIOKERATOMA 494

RHINOSCLEROMA 505

MULTIPLE SARCOMA OF THE SKIN 530

MYCOSIS FUNGOIDES OF THE FACE 532

MYCOSIS FUNGOIDES OF THE ARM 534

KAPOSI'S DISEASE OR XERODERMA PIGMENTOSUM ... 538

LIST OF COLOURED PLATES.

PLATE I

(*Frontispiece*).

Fig. 1.—Ringworm of the Scalp (p. 309).
Fig. 2.—Alopecia Areata (p. 471).
Fig. 3.—Lupus Erythematosus of Scalp (p. 90).

PLATE II.

Fig. 1.—Xerodermia (p. 541).
Fig. 2.—Dermatitis from an Irritant (p. 180).

PLATE III.

Fig. 1.—Ichthyosis Hystrix (p. 542).
Fig. 2.—Eczema of Fingers and Nails (p. 218).

PLATE IV.

Fig. 1.—Eczema behind the Ear (p. 218).
Fig. 2.—Eczema of the Ear (p. 218).
Fig. 3.—Lupus Erythematosus of the Ear (p. 90).

PLATE V.

Fig. 1.—Rupia (Secondary Syphilis) (p. 396).
Fig. 2.—Psoriasis Vulgaris (p. 271).

PLATE VI.

Fig. 1.—Lichen Ruber Planus (p. 137).
Fig. 2.—Secondary Syphilis (p. 395).

PLATE VII.

Fig. 1.—Rosacea (p. 97).

Fig. 2.—Lupus Erythematosus (p. 90).

PLATE VIII.

Fig. 1.—Lupus Vulgaris of Skin and Mucous Membrane (p. 365).

Fig. 2.—Rodent Ulcer (p. 526).

Fig. 3.—Tubercular Syphilide (Tertiary) (p. 404).

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E. Burgess del et

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DISEASES OF THE SKIN.

CHAPTER I.

PATHOLOGY OF THE SKIN.

The skin may be the seat of pathological processes analogous to those seen in other tissues and organs of the body, but modified to a greater or less degree by its position and anatomical structure. It may present congenital anomalies, the result of errors of development or intra-uterine disease, such as xerodermia, nævi, moles, albinism, etc. Its situation makes it particularly exposed to the injurious influence of heat and cold which directly affect the circulation; of light, which in certain circumstances has an almost caustic action; of the friction or pressure of clothes or other substances in contact with the integument; and of the manifold and varied sources of irritation furnished by fungi and other parasitic organisms, animal and vegetable. The skin is apt to be involved in processes which begin in the deeper tissues, to be stretched and broken by the expansion of growths or the collection of fluid, and to be bound down by adhesions to the underlying parts. From its position it is also especially exposed to injury.

Injuries to the skin have a special tendency to become complicated by infective processes, owing to the constant presence of pyogenic and other organisms

long persistent, result in hyperplasia, which must be sharply distinguished from true hypertrophy. In such a case the extravasated leucocytes and the proliferated connective-tissue cells take their place after differentiation as permanent parts of the tissue. Short of this hyperplasia the results of inflammation may be seen in tuberculous foci and in gummatous lesions. Since the real nature of tuberculosis has been determined, and the difference between abscess formation and caseation has been shown to be only one of degree, it appears more logical to include tuberculous and gummatous lesions among inflammatory infections. The increase in substance which accompanies these conditions is due to the fact that the inflammatory cells remain for a time as a tissue of embryonic type previous to either of the two possible terminations—cicatrisation or caseation. Other pathological processes in the skin have only recently been shown to be of inflammatory nature. An instance of this is seen in the case of xanthoma, which was, until recently, classed among new growths, though its general resemblance to atheroma had long been noticed.

All degrees of dermatitis may be set up by the application to the skin of irritants, such as mustard oil, in solutions of varying strength. The slightest irritation causes temporary hyperæmia, in which it would be impossible, on simple inspection, to say that exudation had taken place. The microscope, however, shows the process to be really inflammatory. By using progressively stronger irritants, papules, vesicles, bullæ, and other lesions may be produced. On removing the irritant, recovery takes place with a greater or less amount of desquamation. Microscopic examination of an inflammatory papule shows that the cells of the rete are swollen, while their nuclei are somewhat indistinct, and sometimes

elongated or divided. The corium is infiltrated with small round cells, which are most thickly clustered around the separate vascular areas; hence the irregular protrusion of the epidermis into papules.

A further degree of irritation will transform the papule into a vesicle; the latter lesion is due to separation of the layers of the serrated cells of the rete and accumulation of clear fluid containing leucocytes in the clefts. In the process of separation some of the rete cells are drawn out into fusiform or filiform figures, forming a meshwork in the vesicle. The involution of a vesicle may begin by absorption of the fluid without breach of the superficial epidermic layer, or the vesicle may burst, leaving a red surface which secretes serous fluid and is formed by the papillary layer of the corium, which is generally covered by the deepest layer of the epidermis; this is termed *excoriation*. In more severe cases, not only the whole of the epidermis, but part of the corium, is destroyed; this is *ulceration*. If the irritant action is maintained the contents of the vesicle are more and more charged with corpuscles, becoming opaque and afterwards puriform; thus the vesicle is transformed into a pustule. The contents of a pustule of this kind must be distinguished from pus engendered by the irritation of products of pyogenic cocci.

Umbilication of vesicles or pustules takes place in several ways. Thus the fluid may not fully distend the cleft in which it lies, and the network of elongated rete cells may cause a dimpling (primary umbilication of Auspitz and Von Basch), or commencing absorption may cause a similar flaccidity of the sac; or again, a scab-covered umbilication is often seen after rupture. That pus can be absorbed without being discharged on a surface is proved by the frequent absorption of a collection of pus in the

anterior chamber of the eye without perforation of the cornea. Desquamation in superficial dermatitis is analogous to excessive mucous secretion in catarrhal affections of mucous membranes. This is the course of events in a typical case of traumatic dermatitis; but an inflammatory process may be set up in the skin in various ways. Thus, retained secretion in a sebaceous gland may induce perifolliculitis, which the presence of micrococci may cause to become pustular. Slight injuries, such as those inflicted by the itch acarus or by lice, may also become infected by pyogenic organisms. More intense infective processes are seen in the case of erysipelas.

Abnormal vascular or nervous conditions in the skin render it more vulnerable. This is especially seen in the lower limb, owing to the disadvantages in point of blood- and nerve-supply entailed by the greater distance which separates it from the heart and the central nerve-organs as compared with other parts of the body. The lower limbs show a marked proclivity to inflammation of all degrees of severity when they are the seat of varicose veins, or when they are paralysed owing to affections of peripheral nerves or the spinal cord. Circulatory inadequacy may be due to abnormal conditions of the heart or lungs. There is a special vulnerability of the skin, as well as of the other tissues, which is associated with the so-called strumous diathesis. This vulnerability of tissue manifests itself in slowness of repair after injury, and in a marked tendency to become infected by pyogenic cocci or tubercle bacilli.

The influence of disordered nerve action in producing inflammation of the skin is displayed in such conditions as herpes and urticaria. Other examples of lesions dependent on nervous disorder are seen in acute bed-sore, anæsthetic leprosy, perforating ulcer, etc., where severe lesions are directly traceable to

inflammatory conditions of the peripheral nerve trunks or their origin in the spinal cord.

The results of inflammation vary according to the severity of the process and the structural peculiarities of the part affected. *Pigmentation* is a marked feature in syphilitic lesions, and in all lesions on the leg when the veins are varicose, and when there is therefore a tendency to disintegration of red blood-corpuscles.

Thickening of the epidermis is a frequent result of inflammation, and the increased rapidity of proliferation of epidermal cells leads, in eczema and certain other conditions, to the formation of visible scales and, when the nails are affected, to pitting or thickening.

Degeneration of the skin takes place naturally in old age, the corium becoming thinner, and the skin darker owing to increase of pigment. A peculiar degeneration of the elastic tissue is associated with the disease known as "xanthoma of Balzer." Degeneration of morbid products takes place in xanthoma when the inflammatory cells become loaded with fat, and in the peculiar colloid degeneration of the skin which somewhat resembles xanthoma but is due to changes in the walls of the blood-vessels.

It is no longer possible to draw a hard-and-fast line between inflammations and new growths. The morbid formations seen in tuberculosis, syphilis, and leprosy were, a few years ago, classified as tumours; they are now placed in a special group—General Inoculable Diseases. Evidence is slowly accumulating which seems to lend countenance to the view that cancer and sarcoma are infective diseases; but the whole subject of the etiology of these conditions is still shrouded in obscurity. Papillomatous growths (warts, horns, etc.) may result from constant irritation either by irritating matters, such as strong lotions, but more commonly from prolonged irritation by

micro-organisms. From the epidermis and glands other epithelial growths, such as adenoma and epithelioma (in what I may call the dermatological sense of the term), may arise. From the corium may develop various growths (fibroma, myxoma, myoma, etc.) as well as the embryonic tissue growths or sarcomata.

Parasitic affections are common. Suppuration is usually the result of microbic infection, and parasites are also present in ringworm, favus, itch, etc. The list of such affections will no doubt be extended by further research. Thus Unna regards eczema seborrhoicum as in all probability of parasitic nature.

The importance of the indirect effects of the punctures made by head lice has already been referred to; the body louse and the pediculus pubis are the most common among other external parasites. In some persons the bites of bed bugs are followed by severe urticaria. The probable connection between mosquitoes and the filaria sanguinis hominis has been pointed out by Patrick Manson. In tropical America and on the west coast of Africa a parasite resembling the common flea—the chigoe or jigger (rhyncoprion penetrans)—causes an affection of the skin which, if not properly treated, may go on to inflammation and more or less extensive gangrene. The bot-fly (œstrus), even in Great Britain, occasionally deposits its eggs in the human skin, thus setting up an acute boil-like affection. The cysticercus cellulosæ has been found in the subcutaneous tissue, and the echinococcus, the liver fluke, and bilharzia hæmatobia have all in isolated cases been observed at one time or another. Besides the common mites, acarus scabiei and acarus folliculorum, the harvest bug (leptus autumnalis) occasionally gives rise to inflammatory papules by boring into the skin. The commoner of these parasites will be more fully dealt with in connection with the lesions which they cause.

In addition to the animal parasites, to which reference has just been made, there is good reason to believe that others belonging to the protozoa may determine the development of affections of the skin. The best known instance of a disease now generally considered to be due to protozoa is molluscum contagiosum. The large oval corpuscles found in association with this process, and in a similar disease affecting birds, closely resemble the coccidia or psorosperms often found in the rabbit's liver and the snail's kidney, and in many other morbid conditions of invertebrate and vertebrate animals. They are all included in the group "sporozoa," and are closely allied to the gregarinidæ which are almost constantly found in the testes of earthworms. The contagious nature of molluscum contagiosum is believed by many to be due to the spores of the psorosperms infecting new points of the skin. The infection is supposed to consist in the entrance of amœboid psorosperms into epithelial cells. Once there, they find their way to the nucleus, close to which they remain, and there they grow to such a size that the infected cell comes to form a thin membrane enclosing a large—generally oval—parasite, which breaks up into numerous amœboid spores. According to Darier, Wickham, and others, Paget's disease of the nipple and the cancer which supervenes thereon not only contain sporozoa, but are actually caused by these parasites. Many authorities look upon the bodies that have been identified by some observers as sporozoa in cancerous tumours as being really the result of degenerative processes. The whole question still awaits settlement. A great obstacle which has hitherto stood in the way of the solution of the problems connected with the presence of parasitic protozoa in certain conditions has been the impossibility of applying Koch's postulates in such cases. In spite of this difficulty, however, the

pathological secret of malaria has been successfully unravelled, and it may be that cancer, sarcoma, and other tumours may prove to be of similar nature.

Morbid Anatomy.

Pathological changes in the skin are for the most part to be appreciated by the sight or the touch. Hence the gross anatomy of skin lesions constitutes the most important part of symptomatology, and must be firmly grasped by everyone who intends to hold himself responsible for the recognition of the infective fevers and of all diseases that affect the skin.

The complexity of the normal anatomy of the skin results in a corresponding complexity of morbid forms, or, as they are termed, *lesions* of the skin. These elementary lesions are primary when they result from a pathological process before or at its fullest evolution, and secondary when they result from the more or less complete subsidence of that process. Thus each vesicle in a case of herpes zoster is a primary lesion, and the scars which may remain in the place of the same vesicles are secondary lesions. It should be noted that identical lesions may be at one time primary, at another secondary. The surface of the skin is the *habitat* of a varied assemblage of living organisms, animal and vegetable. Many of the flora and some of the fauna are potentially or actually pathogenic, and thus the variety of skin lesions is further enlarged.

Here it will be convenient to give a complete list of elementary lesions with definitions of the terms used.

Primary lesions.—A *macule* is a portion of the skin altered in colour and having a definite outline without marked elevation.

Some macules are distinctly inflammatory in

nature, others are non-inflammatory. The former, in the slightest degree of development, are areas of hyperæmia, which disappear on pressure or at death. Such are the rose spots of enteric fever in their earliest stage; later they may become papular. Some macules, such as those of syphilitic roscola, leave a brown stain when the intravascular blood is removed by pressure or stretching. Non-inflammatory macules are due either to over-development of blood-vessels, as seen in capillary nævi, or to pigment changes.

The passage of blood, or of the colouring matter of the blood, into limited areas of skin constitutes another variety of macule. These are termed *ribices* when linear; *ecchymoses*, or *petechiæ*, when punctate. There may be excess or deficiency of the normal pigment of the skin (whether that of the rete or of the corium) over a limited area. Freckles are an example of excess (hyperchromasia); leucodermic patches, of deficiency (achromasiæ).

A *papule* is a solid elevation of the skin not larger than a pea. Papules may be produced by inflammation, as in papular eczema. Inflammatory papules may be pointed, rounded, or depressed in the centre either from their having formed round a sweat-duct or as the result of a secondary change, as in molluscum contagiosum. A papule may be non-inflammatory, such as (1) result from the excessive cornification round the mouths of hair follicles, or (2) from retained secretion—as, for instance, comedones—or (3), when pathological in degree or persistence, the elevation of a hair follicle by an erector muscle may constitute a papule, as in severe goose-skin.

Tubercle is the term applied to a solid elevation of the skin when larger than a pea. This use of the term must be sharply distinguished from its

specific pathological sense—*i.e.* a nodule caused by cell-infiltration due to the action of tubercle bacilli on the tissues.

Wheals are a special variety of papule or tubercle. They are met with in urticaria, and are marked by a round, or oval, or irregular shape, a pale centre and a red periphery. They appear suddenly and disappear rapidly, and, except in urticaria pigmentosa, without leaving a trace; they are usually accompanied by intense itching. They are the result of a circumscribed œdema of the skin due to angio-neurotic irritation.

Tumours are very large, solid elevations of the skin.

Vesicles are elevations of the skin not larger than a pea and containing more or less clear liquid. They are superficial (as in eczema, etc.) or deep (as in herpes zoster, etc.), according as the liquid collects between the layers of the epidermis or in the corium. Inflammatory vesicles are usually developed from papules, and may pass on to a pustular stage or subside, leaving some of the secondary lesions to be mentioned later. Non-inflammatory vesicles are due to the passive accumulation of fluid between the layers of the epidermis.

Blebs, or bullæ, are elevations of the skin filled with liquid and larger in size than peas. They occur in pemphigus and other conditions.

Pustules are elevations of the skin containing pus. They always develop from vesicles, and are usually surrounded by a ring of inflammatory hyperæmia (areola).

Secondary lesions.—These are due to mechanical injuries, such as scratch-marks, or form in the involution of primary lesions. In the second category we may recognise four chief processes: desquamation, hypertrophy (persistent infiltration), scar formation (atrophic infiltration), and pigmentation. Thus we have:—

(1) *Scales*, or squamæ, as the result of the subsidence of macules or papules, or they form on a hyperæmic base. The process is termed desquamation.

(2) *Pigmentation* may remain after almost any primary lesion.

(3) *Excoriations* are left after the rupture of vesicles or pustules.

(4) *Ulcers* remain after the destruction by any inflammatory process of the whole thickness of the epidermis, with or without part of the corium or deeper tissues. Thus macules, papules, vesicles, or pustules may leave ulcers.

(5) *Fissures* or rents (rhagades) are a variety of ulcers.

(6) *Scabs* or crustæ result from the drying of liquid exudations on the surface of the skin. Thus they may be left after the cessation of hæmorrhage (blood scab), after the rupture of a vesicle (serum scab), or of a pustule (pus scab), or they may be formed of sebaceous matter, or be caused by a parasitic growth as in favus. Scabs may consist of a commingling of these various dried exudations or growths.

(7) *Thickening* (hypertrophy) may result from the imperfect involution of inflammatory exudations, as *e.g.* chronic eczema, or elephantiasis.

(8) *Scars* are the result of the complete involution of an inflammatory infiltration which has been of sufficient intensity to destroy part of the corium, and thus may remain after any of the primary lesions, especially pustules and ulcers.

Bacteriology of the Skin.

Vegetable fungi play a most important part in the production or modification of skin diseases, and on the recognition of the exact etiological factors in such cases must largely depend our success in treating these affections.

It has long been known that tinea tonsurans, favus, and pityriasis versicolor depend respectively on trichophyton tonsurans, achorion Schönleinii, and microsporon furfur—fungi which resemble each in belonging to the group Ascomycetes, and in the possession of branched septate hyphæ, which form spores, or conidia, by successive separation of small oval bodies at the extremities of the branches. Since methods of research have been improved by Pasteur, Koch, and others, our knowledge of the relation of vegetable fungi to the production of disease has been immensely expanded. Koch's famous postulates have been successfully applied to the three parasites mentioned above, and it is now certain, therefore, that they are the direct causes of the diseases with which they are associated.

It will be of advantage to recall here Koch's four postulates, which are as follows :—

1. The micro-organism must be found in the blood, lymph, or diseased tissue of the man or animal suffering from, or dead of, the disease.

2. Pure cultures of the micro-organism must be obtained in suitable artificial media outside the animal body, and a number of sub-cultures must be made from the original culture.

3. Part of a pure culture obtained in this way must reproduce the disease when introduced into the body of a healthy animal.

4. From the animal thus infected the same micro-organism must again be recovered.

The application of these rules has been of the greatest service to pathologists. In some diseases, it is true, which are believed to be due to vegetable parasites, the third and fourth of those postulates have not yet been fulfilled. For instance, in leprosy immense numbers of peculiar bacilli are present in the lesions, and pure cultures of them have been

obtained. Owing, however, to the fact that animals are but slightly, if at all, susceptible to the disease, it has hitherto been impossible successfully to inoculate them with it. Nevertheless, the causative relation between the parasite and the disease must be looked upon as settled.

Natural suppuration.—For natural suppuration Shattock has suggested the convenient term "pyosis."* Under this term are included a number of closely allied specific affections caused by the pyogenic bacteria which are normally present on the skin. These organisms are :—

1. Streptococcus (στρεπτός = a collar or necklace) pyogenes.
2. Staphylococcus (σταφυλή = a bunch of grapes) pyogenes aureus.
3. Staphylococcus pyogenes albus.
4. Staphylococcus pyogenes citreus.

Micrococci were first observed in pus by Ogston, and the part which they play in the causation of the suppurative process was soon fully established. The demonstration of this fact paved the way for the introduction by Lister of the antiseptic system which has so completely revolutionised surgery.

The streptococcus of erysipelas resembles that of suppuration in shape, and is now generally believed to be identical with it, the effects which it produces being modified by the fact of its being limited to the corium. The readiness with which a superficial erysipelas passes into a suppurating cellulitis affords confirmation from the clinical side of the view that both affections have a common cause. It has been proved that the commonest form of spreading gangrene is also caused by the streptococcus pyogenes.

The great majority of suppurative processes in the skin are set up by staphylococci, especially aureus

* Path. Soc. Trans., 1892.

and albus. Thus the irritation caused by retained sebum determines a certain amount of inflammation; this in turn excites an increased growth within the tissues of the pyococci always present there. The result is suppuration. As a consequence of a similar sequence of events in the hair follicles of the beard or other parts sycosis is induced. Boils and carbuncles are also due to staphylococci. Impetigo contagiosa is another effect of the same cause. In this condition the staphylococci often find their way into the skin through the punctures made by head lice.

Infection by pyococci is often secondary to some other affection. Thus in variolous pustules the streptococcus pyogenes is found; but that organism is not the cause of small-pox, the specific virus of which still remains undetected. In the same way simple eczema often becomes complicated by suppuration by the presence of staphylococcus. The frequent complication of skin affections with processes set up by pyococci is of the greatest practical importance. Thus a rapidly ulcerating lupus is greatly benefited by simple local antiseptics. In rodent ulcer too far advanced for operation, pain may be greatly mitigated by treatment of the same kind.

To what extent simple papillomata may be due to micro-organisms it is in the present state of knowledge impossible to say. The inflammatory papillomata of syphilis and yaws (mucous tubercles) and gonorrhœal warts suggest that the crops of warts which sometimes arise suddenly, and disappear as rapidly as they came, may be due to the irritation of micro-organisms.

Koch's discovery of the nature of tuberculosis has shed a brilliant light on several affections of the skin which are now known to be of tuberculous nature. Lupus vulgaris has been defined as an attenuated tuberculosis, the attenuation being indicated by

the scanty number of bacilli found in the lesions. The *post-mortem* wart, which is not uncommon on the hands of dead-house porters and butchers, has been shown to be pathologically identical with lupus verrucosus, and to be due to the tubercle bacillus. Other forms of tuberculous lesion of the integument will be described under the head of "Tuberculosis of the Skin."

The bacillus of leprosy has already been referred to. It bears a close resemblance to that of tubercle, the chief difference being the greater ease with which the former can be stained. With regard to syphilis, the remote lesions of which so greatly resemble those of tuberculosis, the question of its parasitic origin has not yet been definitively decided. Lustgarten described a bacillus, but his results require further confirmation than has yet been forthcoming before they can be accepted. The clinical evidence, however, is so suggestive of the virus being of microbic origin as to justify the inclusion of syphilis in the same group of inoculable diseases as tubercle, leprosy and yaws. In another disease belonging to this group (glanders) a pathogenic organism, bacillus mallei, has been found; it is of about the same size as the tubercle bacillus, is easily obtainable in pure culture, and has been inoculated with positive results into horses, sheep, guineapigs, rabbits, and mice. The fate which not long ago befell the Russian investigator, Helman, the discoverer of mallein, may be taken as a proof that it is also inoculable in man. In experimental inoculation of the glanders virus a spreading ulcer with a hard base forms at the site of inoculation; numerous small ulcers next appear around it, and finally the infection is generalised, producing enlargement of glands, characteristic nodules in the viscera, and nodules and ulcers on the nasal

septum. In all these lesions the specific bacilli are found.

Rhinoscleroma, a rare affection which attacks chiefly the upper lip and the nasal mucous membrane, is another example of a disease caused by a micro-organism. The specific bacillus is found in the form of cocci, or short rods, surrounded by definite capsules, and closely resembles the pneumobacillus of Friedländer. Malignant pustule is another parasitic disease which may in the first instance attack the skin. In that case the disease remains local for a time sufficient to allow of its being cured by free excision. When it begins in the lungs it is always fatal.

Skin wounds may be infected by the bacillus of diphtheria; and, inasmuch as peripheral neuritis may follow such an infection, there is clinical as well as bacteriological evidence of the identity of the affection in the skin and in the throat.

Emphysematous gangrene (malignant œdema) has been proved to be caused by a particular micro-organism. The bacilli, which are short and broad, bear some resemblance to those of anthrax; but they are motile, and will not grow with a free supply of oxygen. This bacillus has a wide distribution, its spores being found in hay and in the surface soil.

Kanthack and Crookshank have lately found the ray fungus (actinomyces) in the affection known as Madura foot.

One of the hyphomycetes (the aspergillus niger) is sometimes found growing on the superficial layers of the epidermis. The external meatus of the ear is the place where it is usually met with, but Delépine* has reported a case in which the skin of the leg was the seat of the fungus. The aspergillus niger,

* Path. Soc. Trans., 1891.

as a rule, is merely a saprophyte; but in certain instances it takes on a pathogenic character, and may cause perforation of the tympanic membrane.

With regard to the acute specific fevers, there are obvious difficulties which stand in the way of any attempt to satisfy Koch's postulates. Cocci, or bacilli, are found in most cases, but no conclusive proof is yet forthcoming that they stand in a causal relation to the processes with which they are associated.

In addition to the pathogenic bacteria, many saprophytic organisms are found on the skin. The bacillus fœtidus (Thin) is the cause of the disagreeable odour exhaled by the feet of certain individuals, and in pure cultures it generates a similar stench. Bacilli found in "blue" sweat and one form of "red" sweat are due to the presence of micro-organisms.*

The results of a special research made by Unna will serve to give some idea of the difficulties attending the bacteriological investigation of cutaneous affections, and the vast numbers in which moulds and bacteria may be found on the surface of the skin may be gathered from the fact that Taenzer found no fewer than eighty species of bacteria present in the scales, crusts, and discharge in a case of eczema seborrhoicum.†

* Balzer and Barthélémy: *Ann. de Derm. et de Syph.*, June, 1884.

† *Monatsh. f. prakt. Derm.*, 1888, Bd. vii., No. 17, p. 818.

CHAPTER II.

CLASSIFICATION.

Classification is a good servant but a bad master, and the student must never allow himself to be beguiled into thinking that any system of pigeon-holing is an Ariadne's thread which will guide him safely through all the mazes of the pathology of the skin. There can be no finality in the classification of cutaneous affections till finality of knowledge of their clinical phenomena, pathological affinities, and causation has been reached. At present all attempts at classification must be provisional, shifting with the prevailing currents of scientific thought and liable to give way at any moment under the pressure of increasing knowledge. In these circumstances the best classification is not the most complete and symmetrical, but that most likely to be practically useful for purposes of treatment, by grouping diseases according to their proved or probable etiological affinities.

The first attempt to classify diseases of the skin was made by Hieronymus Mercurialis in the first book on dermatology ever published.* His classification was purely regional, skin affections being divided into those of the head and those of other parts. This simple arrangement was followed nearly two centuries later by Daniel Turner,† and afterwards by Alibert (1806), who made two principal genera of cutaneous diseases, those of the head (which he called *teignes*), and those of the body (which he called

* "De Morbis Cutaneis," 1572.
† "Treatise on Diseases of the Skin," 1743.

dartres). The former he subdivided into five, the latter into seven species, each with several varieties based on differences in the appearance of the lesion. Thus a scaly eruption on the trunk was a *dartre squameuse*, one with crusts a *dartre crustacée*, each being still further qualified according to shape, moisture or dryness, etc. Affections too impartial in their attacks on the skin to be confined within the limits of a particular region were grouped in somewhat haphazard fashion as *éphélides*, *syphilides*, *scrofulides*, *psorides*, *cancroïdes*, etc. Scientific classification may be said to have begun with Plenck,* who took as the basis of his classification the predominant objective feature of the disease, including, however, the results of the evolution of the process as well as the primary lesions. He grouped affections of the skin under fourteen heads as follows: (1) Macules, (2) Pustules, (3) Vesicles, (4) Bullæ, (5) Papules, (6) Crusts, (7) Scales, (8) Callosities, (9) Excrescences, (10) Ulcers, (11) Wounds, (12) Cutaneous insects, (13) Diseases of the nails, (14) Diseases of the hair. Willan somewhat modified Plenck's classification, grouping skin lesions in the following "orders": (1) Papules, (2) Scales, (3) Exanthemata, (4) Bullæ, (5) Pustules, (6) Vesicles, (7) Tubercles, (8) Macules. To these Willan's pupil, Bateman, added a ninth group, Dermal excrescences. † Passing over Joseph Frank's (1821) absurd classification of skin diseases into acute and chronic, we come to Erasmus Wilson, who, as an anatomist, naturally looked for a basis of classification in anatomy. He grouped cutaneous affections according to the structure in which they took their origin, making four divisions: (1) Diseases of the derma, (2) Diseases of the sudoriparous glands, (3) Diseases of the sebiparous glands,

* "Doctrina de Morbis Cutaneis," Vienna, 1776.

† "Practical Synopsis of Cutaneous Diseases," London, 1815.

and (4) Diseases of the hair and hair follicles. Meanwhile the French school, of which Bazin may be taken as the representative, attempted to classify skin diseases according to certain constitutional states of which they were supposed to be an expression. To make such a scheme anything like complete, however, it was first necessary to create diatheses to account for a large number of affections, which were accordingly put down to the credit of sundry mythical dyscrasiæ, "herpetic," "dartrous," etc. In 1845 Hebra published a scheme of classification based on the more solid ground of pathology. He divided affections of the skin into twelve classes corresponding to the structural changes in the tissues of the body generally, which formed the foundations of Rokitansky's classification of the results of pathological processes. Thus, according to Hebra, a disease of the skin falls under one or other of the following heads: (1) Hyperæmias, (2) Anæmias, (3) Anomalies of secretion of glands, (4) Exudations, (5) Hæmorrhages, (6) Hypertrophies, (7) Atrophies, (8) Neoplasms, (9) Pseudoplasms, (10) Ulcerations, (11) Neuroses, (12) Diseases caused by parasites.

From what has been said it will be seen that the classification of the English school was mainly objective, that of the French school diathetic, and that of the Vienna school anatomico-pathological, in character. A classification according to processes was attempted by Auspitz, and after him by Bronson, but scientific though such a system undoubtedly is, in the existing state of our knowledge it is impossible to carry it out satisfactorily. At the present day Hebra's classification is generally adopted, with some slight modifications, by English writers.

In the present work no formal scheme of classification is propounded, but an attempt is made to group the diseases described in accordance with the

tendency of modern pathological research—that is to say, etiologically. The lines followed are mainly those traced out by Unna in his arrangement of subjects in the *Monatshefte für praktische Dermatologie*. Thus the affections in the production of which disorder of the nervous system may reasonably be held to be the leading factor, form one class; the eruptions due to artificial irritation, external or internal, a second; those caused by medicinal substances, a third. A large and composite group is made up of affections which, differing in every other respect, are linked together by the fact that they are the result of the action of parasites. These may give rise to constitutional infection, as well as local reaction, constituting a group of general inoculable diseases; or they may produce only local lesions forming a group of local inoculable diseases. Diseases in which the etiology is at present obscure, or altogether unknown—such as eczema, psoriasis, pityriasis rubra, and new growths—are for the present necessarily left unclassified. The progress of medical science lies almost entirely in the discovery of causes. As these become known, fresh groups of diseases will naturally be formed. The outline of a scheme here sketched must not be looked upon as a classification of skin diseases, but only as a provisional arrangement which has at least the advantage of bringing into strong relief the chief point to which treatment is to be directed. Thus, if it is known that an affection is of nervous origin, that fact of itself at once supplies the leading indication for treatment. If the lesions belong to the category of artificial eruptions or drug rashes, it follows naturally that in order to remove the effect we must suppress the cause. A disease belonging to the general inoculable group requires general as well as local treatment, while one belonging

to the local inoculable group can be dealt with by local measures alone. It is not too much to say that whatever changes in our manner of looking at diseases of the skin the growth of knowledge may bring, the principle of classification here indicated can never be superseded.

CHAPTER III.

PRINCIPLES OF DIAGNOSIS.

The diagnosis of any case of skin disease implies an adequate knowledge not only of the nature and evolution of the lesions by which it manifests itself, but of the process of which these are the result. When, in addition to this, the cause, which is the motor of the pathological mechanism, can be discovered, the diagnosis is complete. It is not enough to recognise that an eruption is papular, vesicular, or pustular; as a rule, the individual lesion by itself is no more an index of the disease which produced it than a single brick is of the building of which it forms a part. Each case must be studied in all its relations as a clinical entity, not as a mere illustration of a hypothetical type. Facts must be observed with an open mind and a resolute endeavour to see things as they are, and not to be misled by names. The object of the present chapter is not to set forth in detail all the points which differentiate one affection from another, but the principles of a diagnostic method which may enable the observer, if not to decide at once what the particular disease before him is, at least to say with greater or less probability what it is not.

Examination of the patient. — The first thing necessary is to make a thorough examination of the patient. This should always be done in clear daylight; in the dusk, colour, which is always a most valuable guide in the diagnosis of skin affections, becomes invisible; and by artificial light it is so changed as to be misleading. All the lesions should be seen, and the ideal plan is to have the patient

completely stripped; in the case of females, however, we must generally be content with inspecting the affected parts piecemeal. On no account should the practitioner ever allow himself to be betrayed into giving an opinion on the nature of a skin lesion which he has not had an opportunity of seeing. The examination should in the first instance be purely objective; no reliance should be placed on statements made by the patient, but all possible information should be got from a study of the lesions themselves. When this has been done, the patient's deposition may be taken, but it is most important that no questions of a leading nature should be put, and the statements as to the history and course of the lesions must always be carefully checked by the results of objective examination. The interrogatory should be particularly directed to the following points:—What is the chief symptom complained of? When, in what form, and where did the eruption first show itself? Does it come and go, or is it persistent? What are the general features in the development of the lesions—has there been "weeping," discharge of matter, etc.? In interpreting the patient's answers allowance must be made for inaccuracy of description and misuse of terms; thus even well-informed persons will include under the term "blister" not only vesicles and bullæ, but wheals. The nationality of a patient, or the fact of his having resided in the tropics or other regions where certain diseases—such as leprosy, "spotted sickness," etc.—are endemic, is often a most important link in the chain of evidence. The other relevant points of the patient's medical history should be ascertained in the ordinary way.

In studying an eruption, not only the shape, colour, and appearance of the lesions, but their place and mode of origin, their distribution, their arrangement

in groups or otherwise, the pigmentation which they leave behind them, the presence or absence of induration in and around them, their individual and corporate life history, the presence or absence of local rise of temperature, or the other classical signs of inflammation, and the general symptoms, if any, by which their development is preceded, accompanied, or followed, must be taken into account.

Thus certain diseases almost invariably *begin* in particular spots, as for example, psoriasis on the elbows and knees, and seborrhœic eczema on the scalp. In some affections, as in lichen, the elementary lesion remains unchanged and unmingled with other forms throughout; in others, as in erythema multiforme and dermatitis herpetiformis, it undergoes various transformations, and lesions of the most diverse type are present at the same time.

The lesions may be *symmetrical* in distribution, or the reverse; they may be grouped or isolated and irregularly scattered about. Symmetry may be the effect of an irritant circulating in the blood-stream and acting on the skin. The tissues at corresponding parts of the cutaneous surface have equal powers of resistance, hence symmetry is a characteristic of drug rashes, the eruptions of specific fevers, and generally of skin lesions due to constitutional disturbance.

On the other hand, lesions dependent on other than constitutional causes are *asymmetrical;* exemplifications of this law are seen in herpes zoster, local diseases such as ringworm, tertiary syphilis, growths such as nævi, etc. Sometimes lesions follow the natural lines of cleavage in the skin; this may perhaps be explained by the fact that the cutaneous blood-vessels and nerves run along these lines. In many cases the arrangement of lesions in a particular way may be accounted for by structural conditions; thus new patches of

lupus frequently develop in the track of lymphatic vessels communicating with previous foci, and the lesions of anæsthetic leprosy correspond with the direction and branching of a nerve trunk. In the majority of cases, however, it is impossible to account for the concentric rings and patches of irregular outline in which lesions tend to group themselves, unless these complex figures may be thought to represent some related conditions of the central nervous system which has a common origin with the epidermis in the epiblast of the embryo.

The *evolution* of lesions is important in regard to diagnosis, as a knowledge of their mode of spreading and of the phases which they pass through enables us to recognise the identity of lesions which differ widely in appearance. Many lesions, as in seborrhœic eczema, tinea tonsurans, etc., increase in size by peripheral extension. Some, while continuing to spread at the edge, undergo involution in the centre as in erythema iris; in others, again, as in tinea imbricata, extension takes place simultaneously in a centripetal as well as in a centrifugal direction, the area of healthy skin enclosed by the primary ring of eruption being gradually converted into a uniform patch. When neighbouring rings in their expansion meet each other, the parts in contact disappear, the remaining segments forming broken, curved, or wavy lines, or irregular festoon-like figures which sometimes, as in the so-called erythema marginatum, continue to advance at the edge independently.

Much of the history of the affection is sometimes written in the lesions themselves or their results. For instance, yellowish scabs imply previous pustulation; the record of a discharge may often be seen in stiffened linen; every stain and scar bears its own witness to those who have eyes to read it. It is in the earlier stages of an affection that lesions are most likely to

be seen in their typical character unmodified by natural evolution or artificial changes. The edge of a patch must always be examined with particular attention, for it is here, when the process is active, that lesions can be seen in their original form. Hence the edge of a patch very often supplies the key to the nature of a disease which in the absence of such evidence it would be difficult, if not impossible, to identify with certainty. The apple-jelly nodules of lupus, the red, moist surface of eczema, the glistening papules of lichen ruber planus, the yellow cups of favus, are generally to be found at the edge of areas of disease when elsewhere all typical lesions have been swallowed up in the secondary changes accompanying the evolution of the process.

The observer must carefully discriminate between the lesions that are the direct result of the morbid process and those that are the consequence of modifying influences, such as scratching (wheals, excoriations, blood crusts, dermatitis), scarring with atrophy or hypertrophy (cheloid), thickening of the epidermis (keratosis), secondary inoculation of pus-cocci or other infective material, and local treatment, whether soothing, stimulating, caustic or surgical. It must be borne in mind that two or more affections may co-exist (for instance, scabies with syphilis or psoriasis), and in such cases of mixed disease it usually happens that one condition more or less completely overshadows the other; thus scabies may mask syphilis, and syphilis may more or less completely disguise a true lupus.

In studying an eruption it is always well to compare corresponding parts together—arm with arm, leg with leg, ear with ear, etc. Concomitant lesions of mucous membranes and enlargement of lymphatic glands must be looked for, and all stains, scars, and other marks of past or present

disease must be noted. Lastly, an estimate must be formed of the state of the patient's health, apart from his skin affection.

There are certain affections which can at once be diagnosed by the presence of lesions peculiar to themselves. Thus, burrows, from the distal end of which the itch mite can be extracted, are pathognomonic of scabies; nits on the hair and "hæmorrhagic spots," of pediculosis; broken hairs, of ringworm of the scalp; sulphur-yellow cups, of favus; apple-jelly nodules, of lupus vulgaris; and flat, glistening, purplish papules, of lichen ruber planus. In all these cases the changes incidental to the progress of the disease may so far modify the characteristic lesion as to make it difficult of recognition; but, whenever found, it is conclusive as to the nature of the disease.

In cases of less obvious nature the first step towards the identification of the disease is the elimination of conditions which are clearly "out of court." In the case of chronic processes, congenital malformations, such as xerodermia, must first be excluded. In the presence of an acute eruption the practitioner must guard himself against ridiculous, and possibly disastrous, error by considering the possibility of its being the rash of an infectious fever. In practice it is comparatively seldom that such a question arises; the epidemic prevalence of the disease, the fact of exposure, and the presence of grave constitutional disorder generally leave little room for doubt as to the nature of a febrile exanthem. Now and again, however, the practitioner finds himself confronted with a case in which a diagnosis has to be made almost entirely on the evidence of the eruption itself; and this is not always an easy matter, even for the most experienced. A rapid summary of the main features of the rashes of the principal infectious fevers—scarlet

fever, measles, rötheln, enteric fever, small-pox, chicken-pox, and typhus—will therefore not be out of place here. Erysipelas must also be excluded. The rashes occasionally seen in diphtheria, influenza, cholera, and cerebro-spinal meningitis do not concern us here, as they are merely accidental phenomena, presenting no characteristic features, and are never likely to be a source of difficulty in diagnosis.

The rash of *scarlatina* shows itself on the first or second day, its appearance being heralded by general febrile disturbance of a more or less severe kind. It is erythematous in character, consisting at first of a multitude of tiny red points, which soon coalesce into a diffuse redness of a tint like that of a boiled lobster. The redness disappears on pressure. In very severe cases the eruption presents a purple mottled appearance; it is purpuric in character, and is therefore not obliterated by pressure. It is usually bright red, but sometimes dusky; sometimes it is general; in other cases scattered in patches. The rash usually comes out first on the chest, belly, neck, wrists, or back, and spreads to the limbs; it comes out in fresh crops in one part of the body, while fading in another. It generally disappears by the tenth or twelfth day. Desquamation always follows, being directly proportionate in its abundance to the intensity of the rash. Sometimes the eruption is so faint and transient as to escape recognition. The skin affections most likely to be mistaken for the exanthem of scarlet fever are certain forms of erythema, especially that described by French writers as "desquamative scarlatiniform erythema"; urticaria when the wheals have disappeared, leaving small red spots; belladonna or other medicinal rashes; and pityriasis rubra. In doubtful cases the chief guides must be the presence or absence of the characteristic strawberry tongue, sore throat, and fever. Between the tenth and the twentieth day

of the illness the occurrence of albuminuria may reveal the nature of the disease. The history of a previous attack is not absolutely conclusive against its being one of scarlet fever. Exposure to contagion must also be taken into account.

The rash of *measles* comes out on the fourth day; it almost always appears first on the face. It consists of raised red spots or patches; the latter often run together, and have a marked tendency to assume a crescentic or circular outline. The rash spreads from the face to the body, and from the latter to the limbs. It usually fades on pressure, but in serious cases it is dusky, and even petechial; there is usually considerable swelling of the skin of the face. Desquamation occasionally occurs. The eruption with which it is most likely to be confounded — apart from typhus, rötheln, and the early stage of hæmorrhagic small-pox —is that due to copaiba. The characteristic symptoms of measles—fever, coryza, and cough—will usually prevent its being mistaken for a skin affection.

The rash of *rötheln* sometimes resembles that of measles, sometimes that of scarlatina; occasionally it begins like measles and ends by resembling scarlet fever. The rash, however, does not, as a rule, tend to assume the crescentic shape so markedly as that of measles, nor has it the same preference for the face. It comes out on the second, third, or fourth day, sometimes on the first; it may be accompanied by sore throat, but without the patches and ulceration on the tonsils characteristic of scarlet fever. Some enlargement of the posterior cervical glands is a constant sign and is of great diagnostic importance. The eruption disappears in three or four days. It is most likely to be confounded, apart from scarlet fever or measles, with copaiba rash.

The *enteric* fever rash is not as a rule conspicuous. It occurs chiefly on the abdomen and back, and

consists of rose-red lenticular spots, slightly raised and fading on pressure. They appear in successive crops, each crop lasting some four or five days. It seldom appears earlier than the seventh day. From the dermatologist's point of view, the chief point in connection with rose spots is not to mistake them for flea bites or *vice versâ*, an error which I have known to occur. The great point of distinction is that typhoid spots have not, as a rule, a central dark red point of hæmorrhage. Flea bites, moreover, are generally more numerous than rose spots, and the marks on the linen are a sure proof of the presence of the parasite. The two kinds of spots may, of course, co-exist.

The *small-pox* eruption generally appears on the third, sometimes on the second, fourth, or fifth day. The true variolous eruption is occasionally preceded by a roseolar rash resembling that of scarlatina. It first appears on the face, especially the upper part, and on the wrists, and extends over the back and limbs. The eruption consists of hard red papules which can be felt embedded in the skin like small shot. In a day or two they become vesicular, then pustular, and an inflammatory zone develops around them. The centre of each pustule is generally umbilicated, but this appearance is not constant. In mild attacks the pustules remain discrete, in severer cases they are confluent. Maturation occurs about the ninth day. As the pustules dry up or burst, scabs are formed which on separation leave dark stains, scars, and "pits," the number and depth of which are usually proportionate to the severity of the disease. In bad cases hæmorrhage takes place into the skin, and into the interior of the pustules. The mucous membranes, especially that of the mouth, are not infrequently invaded. In modified small-pox the eruption may resemble that of the unmodified disease, the lesions, however, being less abundant and rarely

confluent; or it may consist of merely scattered pimples, which abort without vesication or pustulation. In slight cases of modified small-pox the aborted pimples may be mistaken for acne in persons subject to the latter affection. Pustular syphilides, when accompanied by constitutional disorder, may be mistaken for small-pox. The iodide of potassium rash, especially when pustular, may simulate variola. The umbilication of the true small-pox pustule, together with the constitutional disturbance, is the chief guide to a correct conclusion.

The eruption of *chicken-pox* bears considerable likeness to that of small-pox, but it is essentially vesicular, only occasionally becoming pustular. There are no hard shotty papules. The favourite situations are the face, the shoulders, the back, and the scalp. Slightly raised red spots generally precede the vesicles. The rash usually comes out within the first twenty-four hours. There is often hardly any constitutional disturbance. When the eruption of varicella becomes pustular it may be confounded with a pustular syphilide, but the absence of itching in the latter is a point of distinction.

The *typhus* rash appears from the fourth to the seventh day. The eruption consists of a general mottling with spots, usually red, slightly elevated, at first disappearing on pressure, but in a day or two ceasing to do so. They ultimately become bluish or brown in colour, distinct petechiæ or subcutaneous hæmorrhages becoming developed in the spots. The general appearance of the typhus rash is fairly well expressed by the term "mulberry rash." It first appears on the front of the trunk, sometimes on the arms and hands.

In the great majority of cases, as already said, there is little real danger of a purely cutaneous affection being mistaken for the exanthem of an

eruptive fever, or *vice versâ*. It is only when the constitutional disorder is so slight as to escape observation that any difficulty as between a symptomatic and a really cutaneous eruption can occur. It is just these slight ill-marked cases, however, that constitute a danger to the community, and if the practitioner has any doubt he will do well to *isolate the patient at home* for two or three days. A precipitate notification of the case as one of infectious disease with removal of the patient to a fever hospital is not unlikely to lead to the supposed fever or some other infectious disease being contracted at the hospital, to the serious injury and possibly death of the patient, and to the discredit of the practitioner.

Erysipelas is usually ushered in by considerable constitutional disturbance (rise of temperature, headache, and often vomiting). The eruption, which is erythematous in character, starts, in the majority of cases, from a wound ; in other cases, from the margin of a natural orifice where the skin and mucous membrane meet. In simple cutaneous erysipelas it may spread over the skin like fluid on blotting-paper, as a red rash with a well-defined edge. When the underlying connective tissue is involved there is swelling proportionate in amount to the depth to which the process extends. The eruption does not occur in patches, but there is a variety of the affection in which the inflammation moves from place to place, and is of short duration in each locality (*erysipelas fugax*).

Zymotic fevers and erysipelas having been eliminated, *feigned eruptions* must next be excluded. In such cases the lesions are always on a part of the body easily accessible to the patient, the front of the chest, the arms, and the thighs being the regions most frequently operated upon. Moreover, the lesions have not the characters of Nature's handiwork, nor do

they conform to the type of any known disease. They generally give evidence of their artificial origin in the regularity of their outline and in the absence of any commencing elementary lesions likely to develop into the conditions present. The subjects are invariably persons of highly neurotic temperament, the large majority of them being young women.

The next group to be considered is the class of *general inoculable diseases*, particularly tuberculosis, syphilis, and leprosy. Tubercular lesions, with the exception of lupus, are as a rule associated either with the well-known signs of the scrofulous diathesis or with actual tubercular disease in the lungs or elsewhere. There is no feature *per se* distinctive of a tubercular lesion in the skin, except the apple-jelly nodule of lupus vulgaris. The diagnosis must therefore be made by concomitant circumstances.

Syphilitic lesions usually betray their nature in their appearance; but no disease is more likely to perplex the inexperienced, on account of the protean character of the lesions which it causes and the extraordinary closeness with which it often imitates those produced by other diseases. There are certain general features more or less characteristic of syphilitic lesions which, taken singly, are inconclusive, but cumulatively have a force amounting almost to proof. These are, in the case of most secondary eruptions, symmetry of distribution, erratic localisation, multiformity of lesion, absence of itching, and, to a lesser extent, peculiarity of coloration and shape. With regard to localisation, syphilis should always be suspected when lesions resembling those characteristic of other diseases are found in situations generally avoided by the latter. Thus a patch resembling psoriasis is probably syphilitic if there are not and have not been any similar lesions in the situations most affected by psoriasis, especially the

tips of the elbows and the fronts of the knees. Polymorphism is a character common to all secondary syphilitic lesions, except macular and erythematous syphilides. A livid colour like that of the lean of raw ham, tending with the lapse of time to become brown and coppery, is always suggestive of syphilis, but is by no means pathognomonic. The same may be said with regard to the shape of lesions. Both eruptions and ulcers due to syphilis have a tendency to assume a horseshoe outline; this by itself, however, is not distinctive of syphilis. Squamous syphilides have sometimes indefinite objective characters, but their nature will be recognisable in the light of a clear history of a primary sore and subsequent signs of constitutional infection. It must be remembered that syphilis often coexists with other skin affections; thus a squamous syphilide may be found as it were grafted on seborrhœa. There are also frequently to be found other coexisting evidences of the disease, such as falling off of the hair, sore throat, pains in the bones; or marks of its presence in the form of scars or enlarged glands in the sub-occipital region, groins and other parts, or nodes on the shins, etc. In late tertiary syphilides the distinctive feature is their marked tendency to spread serpiginously and to ulcerate. Furthermore, they are followed by scarring, and on the scalp by total destruction of hair.

In suspected leprosy the first rough test is the presence of anæsthesia in the lesions, and the patient's previous history in respect of residence in an affected area may afford confirmatory evidence.

The next category of diseases to be excluded is the *local inoculable group*, comprising those caused by (1) animal and (2) vegetable parasites, and (3) those caused by other micro-organisms. In the first of these subdivisions the affection of greatest practical importance is scabies. Here conclusive proof is

afforded by the presence of the acarus. The burrows must be looked for in the webs between the fingers, and about the wrists. The fact that there are no lesions on the face in a given case is presumptive evidence that the disease is itch. The presence of nits on the hairy parts, or of the characteristic "hæmorrhagic spots," is conclusive of pediculosis. Among the vegetable parasites the most important are ringworm, favus, and tinea versicolor. Each of these affections has characteristic features by which it can at once be identified. Thus in ringworm the broken hairs on the scalp, the circinate lesions on the body, and the presence of the special fungus, are conclusive. Favus is recognised by the sulphur-yellow cups and mousy smell; tinea versicolor by the characteristic fawn-coloured spots almost exclusively seen on covered parts of the body and in adults. In the third subdivision contagious impetigo is recognisable by the isolated scabs without inflammatory halo, looking as if they had been stuck on with gum.

The *skin diseases of nervous origin* are recognisable either by the lesions being distributed in correspondence with the area of distribution of a particular root, as in herpes, or by their occurring in persons of markedly neurotic temperament, or as the result of a definite injury to the nervous system, or of mental shock.

New growths on the skin may be confounded with nodular formations of tubercular, syphilitic, or leprotic nature, with the swellings of erythema nodosum, or with abscesses and cysts. Erythema nodosum may be identified by its localisation (legs and arms), the associated rheumatic symptoms and history, and the speedy subsidence of the swellings; collections of fluid by fluctuation or thrill.

Having by this process of exclusion come to a decision—subject, of course, in many cases to revision in the light of fuller knowledge—as to what the

affection is not, the next step is to form a judgment, or, rather, a working hypothesis, as to what it is. In the first place it must be noted whether the eruption is general or localised, and secondly the nature and distribution of the lesions must be observed in greater detail than has already been done. General eruptions, being associated with some alteration in the condition of the blood, are, as a rule, more or less symmetrical. A diffuse red rash is seen in scarlet fever, measles, and the period of invasion in syphilis; such an eruption often accompanies the development of nodules in tubercular leprosy; it occurs in urticaria, erythema, eczema, pityriasis rubra, and follows the internal administration of various drugs—chloral, belladonna, copaiba, antipyrin, mercury, opium, nux vomica, quinine, tar, stramonium, sulphonal and salicylic acid, and the salicylates. The diagnosis must be made by the clinical history, the degree and character of the constitutional disturbance, and the nature of the associated symptoms. Thus in syphilitic roseola there will be a history of infection, enlargement of glands, sore throat, etc.; in tubercular leprosy, more or less perceptible infiltration of the erythematous patches, usually accompanied by some functional disorder of the glands of the affected skin, and by abolition or exaltation of sensation. In the case of scarlet fever and measles the date of invasion is important, and the other points already indicated must be taken into account. Diffuse red rashes due to drugs have nothing characteristic about them, and can only be diagnosed by the exclusion of other possible causes combined with examination of the urine and such circumstantial evidence as can be gleaned from associated symptoms, the discovery of bottles, etc. The more purely cutaneous affections, such as urticaria, eczema, etc., will be recognised as the lesions develop into typical forms.

In the diagnosis of localised eruptions we have, generally speaking, fewer side-lights from constitutional disturbance and clinical history to guide us. There are, however, certain features characterising lesions in particular situations which often furnish a clue to their nature. I propose to give a rapid summary of these, as they relate to eruptions of different types—erythematous, papular, vesicular, bullous, pustular, wheals, ulcers, and dry scaly lesions—when limited to a particular part, such as the scalp, the face, the hands (especially the palm), or the genitals.

Scalp.—On the scalp the chief difficulty in diagnosis is with regard to pustular lesions and dry scaly eruptions. Of the pustular type the chief are contagious impetigo and pustular syphilides. The distinctive feature of the former is that the lesions are not surrounded by a zone of hyperæmia, but look as though they were stuck on with gum (Tilbury Fox); on the other hand, in the case of pustular syphilides, when the scab is picked off there is usually an ulcer underneath, in the older lesions. In pustular eczema, again, the course of the disease is different; there is, or has been, "weeping," especially behind the ears, and the lesions are not isolated like those of contagious impetigo. In lupus erythematosus there are often crusts which resemble scabs; they are not, however, formed by the drying up of pustules, but by sebaceous matter; moreover, on picking off a portion of the crust its under surface will be seen bristling with prickle-like projections, corresponding to the dilated orifices of ducts which they have plugged.

A dry scaly eruption of the scalp is either seborrhœa, seborrhœic eczema, psoriasis, tinea tonsurans, favus, or a squamous syphilide, which again may be secondary or tertiary. The distinctive feature of seborrhœa is that there is no redness or sign of inflammation under the scales. In seborrhœic eczema,

on the other hand, the surface beneath the scales is red, and each patch has an erythematous zone around its edge. Moreover, the scalp alone is seldom affected, and the disease spreads *downwards* to the face, the back, and the chest. Psoriasis, also, is present in other parts, especially on the elbows and knees, and has, as a rule, spread *upwards* to the scalp. In this situation it generally occurs in localised patches, and in typical cases the scales have a characteristic silvery grey appearance. It may here be said, however, that little reliance can be placed on mere differences in the character of the scales in any of the conditions here referred to, when they occur on hairy parts. Ringworm and favus can always be recognised by the distinctive characteristics already mentioned, and, as a last resource, by the detection of the fungus with the microscope.

In the case of secondary squamous syphilides there is nothing characteristic in the appearance of the lesions, and the diagnosis can be made only by the history, the presence of more distinctive lesions or marks elsewhere, and the effect of specific treatment. In the case of tertiary squamous syphilides there is often no other concomitant lesion to guide one, but the characteristic serpiginous outline and marked tendency to ulceration, followed by scarring, are sufficiently distinctive.

Face.—Red patches limited to the face and especially affecting the cheeks and the nose—the so-called "flush-area"—may be erysipelas, erythema, lupus erythematosus, rosacea, or lupus vulgaris. Erythema comes on suddenly; the patch has a well-defined edge, and the eruption is not accompanied by constitutional disturbance. Erysipelas, on the other hand, is accompanied by more or less severe febrile phenomena; the patch has a well-defined edge, which advances rapidly while the process is in the active

stage; the affected skin is tense often to such a degree as to cause great pain on movement. Both in erythema and in erysipelas vesicles and bullæ may form on the inflamed surface. Lupus erythematosus is much slower in its course than either of the affections just named; the patch has often a characteristic outline like a butterfly with expanded wings; there is almost invariably more or less atrophic scarring in the centre, and on detaching a portion of the crusts tags of sebaceous matter will be seen projecting from its under surface. Lupus vulgaris can in most cases be recognised by the characteristic apple-jelly nodules; if these are not at first visible they can often be brought into view by stretching the skin, or by pressing the blood out of it with the finger. In rosacea there is no defined edge, the surface is knobby with papules and pustules, and is traversed by small varicose veins, and there is no scarring. Most of the conditions here mentioned may be more or less closely simulated by syphilis; there is always something wanting, however, which makes the imitation imperfect. Thus the absence of acute general symptoms differentiates a syphilitic lesion from erysipelas; the absence of sebaceous plugs from lupus erythematosus; the absence of apple-jelly nodules from lupus vulgaris; and the absence of dilated veins on the affected surface from rosacea.

Ulcers on the face may be scrofulous, lupous, syphilitic, or malignant. The first of these has no absolutely distinctive characters, but the edge is often undermined and the surrounding skin blue and of low vitality. Scrofulous ulcers are mostly seen in children of strumous aspect or in elderly people with marks of lesions dating from early life. In lupus ulceration is extremely chronic; the edge of the sore is generally more or less rounded, and the process is very superficial, never extending to the bones.

Syphilitic ulceration, on the other hand, frequently attacks the bones of the face and is more rapid in its course. Rodent ulcer usually occurs in persons beyond middle life, and often attacks the face about the outer edge of the orbit or the side of the nose. The ulcer is rounded in outline, has a firm raised "rolled" edge and a depressed centre with little appearance of granulation, and a scanty inoffensive discharge; the process is almost painless. In epithelioma, on the other hand, the edge is everted and very hard; the base of the ulcer is foul and roughened with granulations; the neighbouring glands are enlarged; pain is often very severe, and the whole process is more rapid and aggressive.

Nodular lesions on the face may be due to tuberculosis, syphilis, or leprosy. The tubercular (lupus) nodule has a characteristic gelatinous or apple-jelly appearance, which once seen cannot be mistaken for anything else. Nodular syphilides may be secondary or tertiary manifestations. In the former case they are generally solitary or very few in number; they are coppery in colour, and are generally associated with other syphilitic lesions elsewhere. In the tertiary form they are frequently dotted thickly over the face, especially on the forehead, down the sides, and on the nose; they often coalesce, giving rise to a diffuse infiltration which is apt to break down into ulcers, at the edge of which younger nodules are visible. Gummata are painless and develop rapidly; when they break down issue is given to a puriform fluid, and a cavity is left which, if the patient is left untreated or is out of health, may spread. There is no induration or turning out of the edge and no involvement of neighbouring glands. Leprotic nodules develop slowly; they are yellowish-brown in colour, and may attain the size of a hen's egg. They are at first hyperæsthetic, but when fully developed

usually anæsthetic. Their formation is in most cases associated with a presumption of leprosy from the coexistence of other signs of the disease, and from the fact of the patient having lived in a region where it is endemic.

Small tumours on the face may be molluscum contagiosum, milium, adenoma sebaceum, or xanthoma tuberosum. In molluscum contagiosum each growth has a central depression in which there is a small opening out of which a substance like sebaceous matter can be squeezed. This substance consists of particles of new growth. Milium, on the other hand, has no external opening; but when it is pricked, exit is given to sebaceous matter. Adenoma sebaceum is usually congenital and occurs with nævoid conditions. Xanthoma tuberosum is of a yellowish pearly colour; when it is pricked nothing can be squeezed out, the growth being composed of connective tissue.

Hands.—The eruptions limited to the hands are principally vesicular, bullous, or dry and scaly in character. Artificial dermatitis, from contact with irritating substances, such as lime, etc., must first be excluded. Vesicular lesions are present in eczema, cheiropompholyx, and scabies. In eczema the lesions tend to run together, the disease spreads to other parts, and there is, or has been, "weeping." In cheiropompholyx, on the other hand, there may be discharge, but there is no weeping; the lesions do not tend to run together as in eczema, and there is no eruption in other parts. The affection runs a more or less regular course, and shows a marked tendency to recur. In scabies the lesions are isolated; the characteristic burrows and acari at once establish the nature of the affection.

Dry scaly eruptions are mostly localised on the palm. Both hands or only one may be affected. In

the former case the affection may be psoriasis, eczema, syphilis, lichen ruber planus, xerodermia, or keratosis. It is impossible to diagnose the nature of the case from the dry scaly character of the eruption alone. Psoriasis is indicated by the presence of characteristic lesions elsewhere, notably on the elbows and knees, and perhaps on the scalp ; or there may be a history of an eruption on these parts. In eczema there is a history of "weeping" in the part itself, or eczematous lesions are present in other situations. Lichen ruber planus of the palm is also associated with similar lesions in other parts. If it is a secondary syphilitic lesion, there will be a history of infection and other signs of the disease. Xerodermia is always congenital. Keratosis is also sometimes congenital, in which case it is to be regarded as a form of xerodermia ; and the affection of the palms is generally associated with dryness and hardness of the skin in other parts. On the other hand, keratosis may be the result of a previous inflammatory process, such as dermatitis, eczema, or of arsenic taken internally ; the history in such cases will give the clue to the nature of the affection. Scaly eruptions affecting one palm, if syphilitic, are tertiary. It is, as a rule, only by such side-lights as have been mentioned that the nature of a dry scaly eruption of the palm can be recognised. The eruption itself, however, often presents definite features which, even in the absence of collateral evidence, should at least suggest the nature of the process of which it is a product. In psoriasis and lichen ruber planus the scales are usually massed in small, hard, circumscribed, corn-like patches, but in acute cases of the latter affection the whole hand, both palm and back, may be uniformly affected with general thickening and œdema. In eczema there is not only scaling, but thickening and often fissures. Syphilitic patches are irregular in shape, and often

cracked on the surface; the scales are not piled up, but peel off; the lesions spread serpiginously. In xerodermia there is comparatively little scaling; the skin is dry and polished. In keratosis the thickening is very marked, especially round the circumference of the palm, the hollow of the hand being generally less affected.

Nails.—Lesions of the nails may be due to psoriasis, eczema, lichen ruber planus, syphilis, favus, or ringworm. Most of these affections can be diagnosed only from the co-existence of characteristic lesions in other situations. In the case of ringworm and favus the fungus can be detected by examining scrapings of the affected nail with the microscope.

Genitals.—A vesicular eruption about the genitals of either sex may be herpes, eczema, or scabies. The first of these is characterised by tiny vesicles grouped on an inflamed base; when suppuration occurs it may simulate a soft sore, but the discharge is not autoinoculable. Eczema usually begins in vesicles which are arranged in groups; it is aggravated by chafing (as between the scrotum and the thigh), and shows an erythematous surface which may be moist or dry and scaly, but is always inflamed and angry; the itching is almost intolerable, and pustules and various other secondary lesions are produced by scratching. In scabies the lesions are scattered about, not grouped as in eczema; here again the typical appearances are generally more or less destroyed by scratching, but careful search will reveal burrows and acari. Tinea circinata, affecting the perinæum and genitals, can be identified by its fungus.

Ulcers of the genitals are chiefly venereal. The infecting sore is distinguished by its raised edge, indurated base, and the fact that it is usually single; the non-infecting by the irregularity of its shape, the absence of hardening, and the fact that it is usually

multiple. Squamous and other secondary syphilides about the genitals are to be recognised by the absence of itching and other symptoms of the disease.

In concluding this rapid survey of the salient points which the observer should take as his guides in the diagnosis of skin affections, I wish once more to emphasise the fact that in the majority of instances they will only suffice to establish a *primâ facie* case as regards any particular disease. The object I have had in view has not been to give a full account of all the features which differentiate one affection from another, but to put the student in the way of "reckoning up" a case in a simple, rapid, and logical manner. By the process of exclusion which has been briefly, but I hope sufficiently, illustrated, the observer will, if he fails at once to identify the disease, at least be able to reduce the case before him to a group of affections having close affinities with each other, the study of which he can then pursue in detail, in the sections treating of them. The chapter is, in fact, intended to be an introduction to the right use of presumptive evidence, and of clues supplied by the disease itself to the identification of affections of the skin. It can hardly be necessary to repeat that a diagnosis of the kind here referred to must, as a rule, be regarded as merely provisional until it has been confirmed by the results of a study of the case in all its bearings.

CHAPTER IV.

AFFECTIONS OF THE SKIN DEPENDENT ON NERVE DISORDER.

Hyperæsthesia—Pruritus—Anæsthesia—Urticaria—Prurigo.

The diseases treated of in this chapter are generally described separately as different forms of inflammation of the skin. An attempt is here made to group them together by the bond of a primary cause common to them all. Widely different from each other as herpes and leucodermia may appear to be in every other respect, the essential etiological factor—namely, disturbance of innervation—is the same in both. Erythema, pemphigus, herpes, and perhaps lichen, may be regarded as connecting links between simple vaso-motor disturbance, as represented by urticaria on the one hand, and the results of grave structural lesions of the nervous system, as displayed in Raynaud's disease and diabetic gangrene, on the other. In studying this chapter the reader will do well to draw a sharp line of demarcation between the clinical and pathological *facts* therein set forth and the chain of *theory* by which it is sought to bind them together. The former rest on a sure foundation of observation and experience; the latter, like all chains, is only as strong as its weakest link.

The skin affections dependent on lesion or functional disorder of some part of the nervous system may be provisionally classified under the following heads:—*

* H. Leloir: "Des Dermatoneuroses;" reprinted from the *Journal des Maladies Cutanées et Syphilitiques*, April, 1890.

1. Pure sensory disturbances—anæsthesia, hyperæsthesia, paræsthesia, pruritus.

2. Pure motor disturbances—"goose-skin," contraction of the muscles of the hair follicles.

3. Pure vaso-motor disturbances causing abnormal contraction or dilatation of the arterioles supplying the skin—*e.g.* urticaria, certain forms of erythema, circumscribed œdema, cutaneous hæmorrhages, etc.

4. Trophic disturbances causing local disorders of nutrition. This class includes certain erythemas, "glossy skin," pellagra, certain eczemas, zoster, pemphigus, and certain forms of ulceration and gangrene — perforating ulcer, bed-sore (Charcot), Raynaud's disease, and some varieties of œdema, sclerodermia, leprosy (anæsthetic and mixed) and leucodermia, and other abnormalities of pigmentation. Certain lesions of the nails, such as "splitting," belong to this category.

5. Glandular disturbances, which fall naturally, in accordance with the kind of gland affected, into the following subdivisions: (*a*) *sweat glands*—hyperidrosis, hæmatidrosis, etc.; (*b*) *sebaceous glands*—rosacea, seborrhœa; (*c*) *hair follicles*—baldness, greyness. It will be convenient, however, to consider these conditions in a separate chapter.

It must be borne in mind that this classification is still largely of a tentative character; but it may be found useful as a help in the provisional arrangement of observed facts.

As to the connection of affections of the skin with lesions of particular parts of the nervous system, little is yet definitely known. That the *brain* is largely concerned in the development of certain cutaneous affections is shown by the frequency with which erythema, dermatitis herpetiformis, and lichen ruber planus can be directly traced to violent mental emotion. Pigmentary changes are also often the result

of nervous shock—a fact illustrated by the whitening of the hair which sometimes takes place under the stress of sorrow or anxiety, or even suddenly under the influence of a great fear. The comparative frequency of leucodermia in the insane and in epileptics is probably attributable, at least in some measure, to abolition or suspension of cerebral control. Facts have been recorded which seem to indicate that severance of nervous communication with the brain may affect the distribution of an eruption.* The brain acts on the skin through the medium of the sympathetic, and its influence in the production of cutaneous eruptions is measured by the degree to which it inhibits the vaso-motor centre. In the majority of cases no visible changes in the encephalon have been found in relation with lesions in the skin. Bourneville and Poirier have, however, reported a case in which partial discoloration of the skin was associated with a tumour in the left fronto-parietal lobe.†

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Cutaneous eruptions are frequently associated with lesions of the *spinal cord*, the posterior columns of which play a leading part in the nutrition of the skin. Any abnormal condition which affects them is, therefore, not unlikely at some stage of the process to find an echo in the integument. This is especially the case in locomotor ataxy, in which skin lesions of the most varied kinds are of common occurrence. In the early stages erythema simplex and erythema nodosum, urticaria, papular eruptions, eczema, herpes zoster, pemphigus, pustules, ulcers and gangrene, have been met with; their appearance is usually coincident with exacerbation of the lightning pains, and, as a

* *See* Crocker: "Lesions of the Nervous System etiologically related to Cutaneous Disease;" *Brain*, vol. vii. (1884-85), p. 343, *et seq.*

† *Progrès Médical*, 1879.

rule, their distribution is limited to the course of the nerve along which the pain is felt.* In the later stages of ataxy, perforating ulcer of the foot, shedding of the great toe nail, leucodermia, petechiæ and ecchymoses, unilateral swelling, and œdema have been observed. It is probable that sclerosis of the posterior columns is the particular condition most frequently associated with skin eruptions; but as, even in ataxy, such eruptions are not the rule but the exception, it would seem that something besides the lesion of the cord is required for their production. In some cases of acute disease characterised by bullous eruptions (Schwimmer, Meyer), the most striking lesion in the cord was sclerosis of the columns of Goll. As to the relation of disease of the other divisions of the cord to affections of the skin, the pathological evidence is at present ambiguous or negative.† In spinal meningitis herpetic and pemphigoid eruptions are not uncommon; and Erb says herpes and bullæ are often associated with slow compression of the cord. In both cases the skin lesions are probably in direct relation with changes in the posterior columns or the issuing nerves. Skin eruptions may, however, occur in connection with disease in the cord—as in the case of acute ascending paralysis—where no visible lesions are to be found.

Bärensprung has shown that herpes zoster is the direct effect of inflammation of the spinal ganglia corresponding to the nerves in the area of distribution of which the eruption occurs. In some cases, however, herpes zoster seems to depend on a lesion

* Crocker, *loc. cit.*, p. 350.

† Schwimmer's cases are reported in his "Die neuropathischen Dermatonosen," a work in which the nervous origin of many skin lesions was first fully discussed and illustrated by many striking cases. (Vienna, 1883.)

of the posterior spinal roots, the cord and the ganglion being to all appearance healthy. Herpes frontalis has been found associated with inflammation of the Gasserian ganglion, or hæmorrhage into that body (Kaposi). In other cases herpes has seemed to be due to injury or neuritis of the trunk itself (Dubler); but in these cases it is obvious that the inflammation may easily have extended upwards to the spinal ganglion. The same may be said with regard to other cases in which herpes is a consequence of peripheral irritation.

The skin lesions that have been observed to follow gunshot and other injuries of nerves are a very persistent variety of erythema resembling abscess, and described by some writers as erythema nodosum, herpes, bullæ, ulcerations—simple and perforating—eczema, "glossy skin" (Weir-Mitchell), defects of hairs and nails, pigmentary changes, chronic œdema, and a condition resembling ichthyosis. The eruption of bullæ on the fingers and toes, which often accompanies the shooting pains in the early stage of anæsthetic leprosy, may be grouped under this head, as they are caused by inflammation of the nerves of the limb.

In cases of skin eruption (pemphigus, leucodermia) the cutaneous nerves in the neighbourhood of the affected part have sometimes been found to be in a condition of atrophic parenchymatous neuritis; but it is doubtful how far in such cases the peripheral lesion has been independent of central changes. It seems to me probable at any rate that, as Crocker says, the cutaneous nerves do not give way until the central influence is weakened. The direct evidence as to the influence of lesions of the sympathetic in the production of skin eruptions is inconsiderable.

Eruptions, such as erythema of a transient kind,

urticaria and rosacea may also be caused by reflex irritation from some distant part, especially the uterus and stomach.

To sum up, the action of the brain on the skin varies according as its control over the vaso-motor system is increased or diminished. In the cord, the fibres that regulate the nutrition of the skin are bound up with the sensory fibres, and consequently are in the posterior columns; outside the cord they run through the posterior roots and spinal ganglia, with the sensory fibres, and lesions of one or more of these may be followed by eruptions on the skin. It must be borne in mind that precisely similar lesions in a nerve-centre may, in different individuals, or in the same person at different times, produce widely different effects on the skin, and still more often may produce none at all. There are, as already said, other conditions which have a determining influence on the development of eruptions, of which nothing is at present known.

Besides the various modes of influence of the nervous system upon the skin which have been referred to, cutaneous lesions may be indirectly of nervous origin, when, owing to injury or to the condition of impaired nerve force, conveniently designated by the term "neurasthenia," the innervation of the tissues is defective, and the skin and other parts are therefore more vulnerable than in the normal state.

Of skin lesions in connection with hysteria and other neurotic conditions there is not much to be said at present. One point of difficulty in the subject is to eliminate the element of fraud or unconscious deception in such cases. Charcot,* however, has recorded several cases of what he calls "hysterical

* Gilles de la Tourette: "Traité Clinique et Thérap. de l'Hystérie," vol. i., Paris, 1891.

œdema," which may ulcerate and simulate cancer; and Renaut has described a "gangrenous urticaria" of purely neurotic origin.*

It has already been stated that in the production of skin lesions the nerve centres operate mainly through the agency of the vaso-motor system. In all cutaneous eruptions of nervous origin the mechanism of their production is the same. The process is "angio-neurotic" in character—that is to say, a disturbance propagated from the centre, or reflected from the periphery, sets up a corresponding disturbance in the vaso-motor centres in the spinal cord, with the result that the circulation at certain parts is thrown into disorder. The blush of shame and the pallor of fear illustrate the effect of mental emotion—*i.e.* disturbance of the higher cerebral centres—on the vaso-motor system, and through it on the skin. The rashes of fevers and the eruptions caused by certain drugs exemplify the action of the cerebro-spinal centres on the integument; these centres are in the first place irritated by the poisonous material circulating in the blood, and this irritation reacts through the vascular system on the skin. The effect of peripheral irritation is illustrated by the consequences which in some persons follow contact with certain species of hairy caterpillars. Intense local hyperæmia, quickly followed by the development of a wheal, is the first result of the direct irritation of the sensory filaments. Soon, however, when the peripheral irritation has had time to make itself felt in the centres, an answering disturbance is excited in parts around the original seat of irritation, and this may reach such a pitch that scratching will at once bring out an abundant crop of similar lesions. A good example of reflex angio-neurosis is found in urticaria, in which the

* *Médecine Moderne*, February 20, 1890.

irritation of the pneumogastric nerve by the offending agent—*e.g.* shell-fish in the stomach—is reflected from the centre to the skin.

The character of the lesion produced by disordered innervation in any particular case is to some extent a question of the degree of vascular disturbance; but that other elements of a less simple nature are concerned in the process is proved by the fact that in varicella or pemphigus exudation may occur without precedent hyperæmia.

The treatment of the various affections of the skin dependent on nerve disorder is given in a separate chapter.

Sensory Neuroses of the Skin.

The sensibility of the skin may be exaggerated, disordered, or abolished without any visible lesion to account for the subjective phenomena. When itching is present, secondary lesions produced by scratching can nearly always be seen; but these are the effect and not the cause of the sensory disturbance.

Hyperæsthesia.—Hyperæsthesia of the skin is met with in certain nervous affections; the excessive sensibility may be general or limited to the area of distribution of a particular nerve. The increased keenness of the pain-sense is often accompanied by a greater or less degree of diminution of tactile sensibility. In hysteria the sensibility of the skin is often greatly exaggerated, a characteristic point being that the hyperæsthesia is very inconstant, both in its position and in its duration. This pain sensation is produced by light stroking rather than by firm pressure.

Actual neuralgic pain in the skin is not uncommon in locomotor ataxy, and sometimes it seems to be the result of cold. It is generally localised in

hairy parts, and ruffling, or even touching, the hair sometimes causes much discomfort, of a character akin to the pain of so-called "muscular rheumatism." Spontaneous pain in the toes, followed by patchy red discoloration of the skin and made worse by warmth, has been described by Weir-Mitchell under the name of "erythromelalgia." The pain was so severe in the case which formed the basis of his description that the patient submitted to amputation of one of his toes.

Pruritus.—The term "pruritus" is not synonymous with itching in the language of dermatology. Itching is the general term which includes the particular variety pruritus. Itching may be caused by parasites, or by certain definite skin lesions; pruritus is itching without any visible cause to account for it. It is a true sensory neurosis caused by some functional disorder of the related nerves independently of any source of irritation on the surface.* The symptom may be so mild as hardly to interfere with the patient's comfort, or it may be so severe and persistent as to endanger his life from sleeplessness, or his reason from the nervous irritability which it causes. It is usually aggravated by errors of diet, by warmth of the bed, and by mental excitement. The strongest will cannot keep the patient from seeking relief in scratching, and, as a matter of fact, the itching often ceases when excoriation has been produced.

Pruritus may be general or local. Of the former, three varieties are described—viz. pruritus universalis, pruritus hiemalis, and pruritus senilis. In the first

* Bronson, in a paper on "The Sensation of Itching," reprinted in "Selected Monographs on Dermatology" (New Sydenham Society, London, 1893, p. 299, *et seq.*), comes to the conclusion that "the disturbance in pruritus is of the nature of a dysæsthesia due to accumulated or obstructed nerve excitation with imperfect conduction of the generated force into correlated forms of nervous energy."

of these the itching, though affecting the whole body, is not felt all over the surface of the skin at one and the same time; it is, fortunately, also subject to remissions. The causes of it are mostly constitutional—gout, rheumatism, jaundice and functional derangement of the liver, diabetes, Bright's disease, cancer of the stomach or liver, dyspepsia, uterine disease, and pregnancy. Many sufferers from universal pruritus are the subjects of lithæmia or oxaluria. The affection often begins in cold weather, but it is by no means confined to the winter. Pruritus hiemalis, on the other hand, according to Duhring, begins between October and January, and ceases about April or May. The itching generally affects the extensor surfaces of the limbs, especially the thighs, but the whole surface of the skin may be involved. The itching is worst on going to bed and on leaving it, probably owing to the sudden change of temperature in each case. During the day, when the patient's attention is otherwise engaged, he is but little troubled by it. In this form of pruritus, though the exciting cause seems to be cold, the patients are generally of gouty or rheumatic antecedents or inheritance. Many of them are of neurotic constitution, and are the subjects of hay fever. Others have a naturally dry and thick skin.

Pruritus senilis is probably the expression of senile changes in the skin. It begins usually after the age of 65, and is extremely persistent. A remarkable feature in this form of pruritus is that scratching leaves little or no mark (Brocq).

The local varieties of pruritus affect the anus, the vulva, the scrotum, the nares, the palms of the hands and the soles of the feet. In most cases some local cause of irritation will be found if carefully looked for. Thus pruritus ani may be due to hæmorrhoids, to the presence of scybala in the

rectum, to ascarides, to fissures, etc.; sometimes it appears to depend on dietetic errors, notably the abuse of coffee. Pruritus of the vulva may be caused by ovarian, uterine or vaginal disease, and especially by the passage of large quantities of sugar in the urine. It is often also a climacteric symptom. In young children pruritus may be due to the presence of ascarides in the rectum. Pruritus of the scrotum, apart from eczema or intertrigo, is rare; when present, however, it is a most distressing affection. The point of maximum intensity of the itching is the raphé (Brocq). Pruritus narium is generally a trivial affection; those subject to it are usually of gouty strain. The itching is occasionally brought on by the motion of a carriage. Pruritus palmarum et plantarum is very rare. The sufferers are mostly gouty. In women it is sometimes associated with uterine disorders. The affection is symmetrical, and is sometimes most troublesome.

When pruritus is complained of, the first thing to be done is to exclude all possible sources of parasitic irritation—lice, bugs, fleas, *et hoc genus omne*. Nothing in this matter must be taken for granted; lice and itch are sometimes found in the most unlikely quarters. The situation of the scratches must be noted. If the shoulders are marked, especially in elderly people, the presence of pediculi must be suspected; if the wrists and interdigital spaces, the furrows of the acarus scabiei must be very carefully looked for. In all cases of local pruritus the parts must be examined for the conditions that have been mentioned as often producing it. The urine must be examined and the constitutional state inquired into. It is a sound rule of practice, however, to fall back on general causes for pruritus only when minute investigation fails to reveal any local source of irritation.

Anæsthesia.—Loss of sensibility depends on various central and peripheral nerve lesions, and, as a rule, lies beyond the province of the dermatologist. It is a prominent symptom of non-tuberculated leprosy, in which the absence of common sensibility is often associated with increased sensitiveness to cold. Owing to this, the lepers in Norway frequently inflict severe burns on themselves by pressing their hands and feet against the bars of the grate. Anæsthesia is sometimes a symptom of hysteria; in that case it is apt to shift about very suddenly from one part of the body to another.

Angio-Neuroses.

Urticaria.—The characteristic lesion of urticaria is a wheal or raised patch of skin flattened on the surface, firm to the touch, and at first uniformly red in colour, but afterwards white and bloodless in the centre, with a bright red border, which often has an areola of erythematous redness outside it. Sometimes, however, the patch remains red throughout. When the wheal subsides the centre becomes red and the border pale. When wheals are numerous their areolæ become confluent, so that the white wheals stand out boldly on a red ground. Wheals vary in size from a threepenny piece or smaller to a florin or even a four-shilling piece. The lesion is seen in its most typical form in the wheal which is caused by the stinging nettle, whence the name "urticaria" (*urtica*, nettle), or nettle-rash.

Urticaria comes on quite suddenly, the appearance of the eruption being accompanied by intense itching and burning. Scratching gives some momentary relief, but is followed by the development of large numbers of fresh wheals which spring up, so to speak, under the patient's fingers or may appear

at a distance. Sometimes the affection is purely local, but in severe cases the skin eruption is usually associated with some degree of fever and systemic disturbance. The individual wheals last only a few hours at most, and disappear, leaving no trace of their presence. Fresh crops, however, may continue to appear, and the attack may last for some days. In some cases the eruption comes out in successive crops day after day, for weeks or months or even years.* To this form of urticaria the term "chronic" is usually applied; but as there is no difference in respect of the severity of the local symptoms between it and the more common short-lived variety (*urticaria fugax*) which has already been described, it would be more logical to call it *urticaria perstans*. In certain cases not only the duration of the disease, but that of the individual wheal is considerably prolonged. Cases of this kind have been reported in which wheals on the limbs, the back, and the belly, varying in size from a lentil to a haricot bean, persisted for three months.†

Urticaria may attack any part of the cutaneous surface, and sometimes invades the mucous membranes of the mouth, tongue, pharynx, possibly of the bronchi and stomach (Pringle). This probably affords an explanation of its frequent association with asthma, the same causes determining an attack of both affections. The wheals have no definite arrangement, and are never symmetrical. There may be only a few on some particular part of the body, or they may cover nearly the whole of its surface. A striking feature of urticaria when it has obtained a hold on the patient is that the lightest contact with the clothing or the least scratch will at once bring out a crop of wheals on any part of the skin; even when the rash is not

* Dubreuilh: *Gaz. des Hôp.*, October 22nd, 1892.
† C. Boeck: *Norsk Magazin for Laeg.*, 1888.

present the patient can often write his name with his finger-nails on apparently healthy parts of his skin, especially on the back (*urticaria factitia*).

Several varieties of urticaria have been described according to the size, configuration, and structural peculiarities of the characteristic lesions. Thus the wheals may be small and on their subsidence leave papules. Hence the name *urticaria papulosa*. It is to Colcott Fox that we owe the proof of the urticarial nature of these lesions and their identification with the lichen urticatus of Bateman and the lichen strophulus of Rayer and Biett.* Urticaria papulosa is chiefly met with in children. The lesions are, as a rule, no larger than a lentil, and on the top of each is a tiny red point or inflammatory papule, which is usually covered with a darkish scab, the result of scratching. If the red papule is not at first visible it can always be brought into view by pressure, when the colour fades from the circumference of the papule, leaving a minute red spot in the middle. The eruption affects all parts of the body, but shows a certain preference for the trunk. Fresh crops of little papules come out at night and cause such intense itching that sleep is impossible. The disease may last for several years, becoming milder or practically remitting in winter and returning with the warmer weather, or *vice versâ*. Urticaria papulosa may be looked upon as a connecting link between urticaria and prurigo.

When ordinary urticaria attacks parts like the eyelids, scrotum, etc., where there is much loose connective tissue which offers comparatively little resistance to the diffusion of the infiltration, it is termed *urticaria œdematosa*. The œdema as a rule comes on suddenly, to the great alarm of the patient,

* Colcott Fox: "Urticaria of Infancy and Childhood," *Brit. Journ. of Dermatology*, May, 1890.

especially when mucous membranes such as those of the tongue and throat are involved; but it seldom lasts longer than twenty-four hours. Alcoholism and neurotic inheritance seem to be predisposing causes.

Urticaria gigas is a form of the disease characterised by the development of patches of localised œdema of large size. They are hard to the touch, like the biceps muscle when strongly contracted. There is usually no redness of the surface, and itching is seldom complained of. The swellings last a day or two and subside as quickly as they came. The disease is often described as the acute lymphatic œdema of Quincke.

When effusion of blood takes place into the wheals the condition is sometimes termed *urticaria hæmorrhagica* or *purpura urticans;* when bullæ form on the surface it is sometimes spoken of as *urticaria bullosa. Urticaria pigmentosa* presents sufficiently marked characteristics of its own to merit separate description.

The causes of urticaria may be classified as predisposing, external, and internal. Among *predisposing* causes are sex, females being considerably more liable to the affection than males; age—infants, owing to the irritability of their skin, being particularly prone to nettle-rash; the neurotic temperament; indigestion; gout; functional and organic disease of other organs, notably the uterus and ovaries, and of the nervous system. Malaria is so strong a predisposing cause that some writers make a special variety of the affection, under the name of "paludal urticaria." Urticaria is often associated with jaundice, rheumatism and purpura, and occasionally coexists with albuminuria and glycosuria. Violent mental emotion may be sufficient of itself to bring on an attack. Among *external* causes are local irritants, such as

the stings of nettles, jelly-fish or wasps; the bites of insects, such as bugs, mosquitoes, etc.; contact with or even proximity to certain hairy caterpillars; the direct application of cold to the skin, and especially sudden alternations of temperature.*

Among *internal* causes are certain articles of food which irritate the alimentary canal and reflexly the skin (through the pneumogastric nerve). Every variety of idiosyncrasy is displayed by patients in this respect; but to shell-fish, especially mussels, crabs and lobsters must be assigned the chief place among dietetic irritants. Among other substances which cause urticaria in certain individuals may be mentioned pork, almonds, strawberries, parsley, mushrooms, and oatmeal. Certain medicinal substances also cause urticaria. These are dealt with in the chapter on "Artificial Eruptions." (See page 178.) Among the internal causes of the affection should also be mentioned the presence of hydatid cysts, and especially of their fluid contents, in the abdominal cavity; and worms.

Pathologically, urticaria is a result of reflex vasomotor disturbance. Stephen Mackenzie places the nervous centre of the reflex mechanism in the dense plexus of fine nerve fibres in the superficial layer of the corium. The wheal is simply a circumscribed œdema of the skin due to paralytic dilatation of the arterioles, followed by exudation of serum and migration of leucocytes. According to Neisser,† the process consists in an increased secretion of lymph in the neighbourhood of the capillaries of the skin; this in its turn causes compression of the vessels and explains the white centre of the wheal. The variations in the size and other characters of the wheal are due to the different depths to which the infiltration penetrates.

* Crocker: "Diseases of the Skin," 2nd edition, p. 95.

† *Verhandlungen deutsch. dermatol. Gesellsch.*, 1889, p. 253.

In ordinary urticaria only the upper layer of the integument is affected, while in urticaria gigas the whole thickness of the skin is involved, and in the œdematous variety infiltration takes place into the loose meshes of the subcutaneous areolar tissue.

The diagnosis of urticaria, as a rule, presents no difficulty, the sudden onset, the presence of wheals, and its fugitive nature being the characteristics of the disease. In certain cases, however, in which the wheal is surmounted by vesicles or bullæ, urticaria may for a time simulate pemphigus, or the first stage of dermatitis herpetiformis; and if the constitutional symptoms are well marked, the rash may at first be mistaken for that of scarlet fever, or even for erysipelas, but the course of the eruption soon reveals the true nature of the affection. Urticaria papulosa is frequently confounded with scabies, but the distribution of the lesions and the absence of the characteristic burrows are sufficient to exclude that disease.

The prognosis is always favourable, although, as has been said, in some rare cases the duration of the disease may be more or less prolonged.

Urticaria pigmentosa.—Urticaria pigmentosa is a variety of urticaria presenting special features sufficiently distinctive to justify its description under a separate title. It begins very soon—generally a few days—after birth, hardly ever later than the third month. The essential feature is the appearance of raised patches somewhat conical in shape and red or pink in colour; these afterwards become flattened on the top, and their hue deepens gradually to dark brown. The individual lesions do not disappear like the wheals of ordinary urticaria, but persist while additional ones come out in successive crops. When the disease is fully developed the child is spotted with more or less prominent patches, varying in size from a split pea to a sixpenny-piece,

and in colour from bright red to dark brown, according to the age of the wheal. The parts usually affected are the front and sides of the chest, the back, the belly, and the limbs; the face is not always spared. The disease is usually markedly symmetrical in contrast with ordinary urticaria, as was illustrated in a remarkable manner in a case recently shown by me at the Clinical Society.

At varying intervals the morbid process seems to be quickened into fresh activity, especially in summer. At such times the patches become intensely congested. Vesicles and bullæ may develop on their surface, and new lesions appear on parts of the skin previously healthy. These phenomena are accompanied by intolerable itching, and the scratching, which is the result, adds fuel to the fire. In some cases the raised red patches predominate; in others the flattened pigmented ones. Usually the two forms which, as already said, represent different stages of the same process coexist in varying proportions.

The natural tendency of the disease is to disappear as the patient grows older. Three well-defined stages can be recognised in the large majority of cases. There is a period of activity during which successive crops of the eruption continue to appear. This lasts about a year, or longer. Next follows a period lasting from two to five years, during which the disease is more or less stationary. Lastly, there is a period of retrogression during which the spots gradually fade away. This may last several years.

Urticaria pigmentosa is essentially a form of vaso-motor disturbance, with the special feature that the local infiltration, which gives rise to the distinctive lesions, is largely made up of the cells called by Ehrlich *Mastzellen*.

The diagnosis of the condition rests chiefly on

the appearance and mode of evolution of the wheal-like patches and the persistence of their pigmentation.

Prurigo, though looked upon by Hutchinson as merely "a peculiar irritability in which a variety of causes may evoke the symptoms to which that name has been given,"* is, in my opinion, entitled to a place in nosology as a distinct clinical entity. The characteristic lesion is an eruption of discrete slightly raised papules, at first of the same colour as the skin, afterwards, when subjected to irritation by scratching, becoming reddened and increasing in size. There is often a blood-crust at the top of the papules. These are most abundant on the extensor surfaces of the limbs, but they also occur on the chest (back and front), the lower part of the belly, the sacral region, and the buttocks. They are rarely seen on the flexor aspects of limbs, and they occur sparsely on the face. The itching is intense, and secondary changes in the skin, produced by scratching, are very marked. Besides these, other lesions often develop, which may resemble those of eczema (except that the flexor surfaces are generally spared) or urticaria. Pustules and sores, often accompanied by considerable enlargement of the femoral and axillary glands, are not infrequent. In a severe type of prurigo (called by Hebra *ferox*, to distinguish it from the *prurigo mitis* of Willan, which is the ordinary form of the disease) the elementary lesions are more developed and more numerous, and the skin in certain parts, notably the legs and fore-arms, gives a sensation to the touch like coarse brown paper or a nutmeg grater (Crocker). Poverty and bad hygiene are predisposing causes, and males are more often affected than females. Prurigo generally begins in the first year of life,† when it

* "The Pedigree of Disease," p. 61.

† Vidal ("Considérations sur le Prurigo de Hebra," *Ann. de Derm. et de Syph.*, September-October, 1892) says that, like

shows itself in the form of lichen urticatus. After a time, however, the wheals decrease both in size and in number, the eruption meanwhile assuming a papular character, which it retains. The affection, unless treated in the very early stage, generally lasts the whole of the patient's life, becoming better or worse, however, under the influence of season, the state of the health, etc. Pathologically, prurigo is a neurosis of the skin expressing itself through the medium of the vaso-motor apparatus in an inflammatory process, which passes through the ordinary phases and gives rise to secondary changes. These may be summed up as consisting of what French writers call "lichenisation"; the skin gradually becomes hypertrophied and indurated as the result of chronic inflammation. The diagnosis is made partly by a process of exclusion, partly by the sum of the clinical facts. Other itching conditions such as scabies, pediculosis, etc., are excluded by the absence of the characteristic lesions. The positive characters are that the disease dates from infancy, and that it appears in the form of a papular eruption which affects chiefly the extensor surfaces of limbs. A pathognomonic feature is the nutmeg-grater-like feel of the skin on the outer side of the legs and fore-arms. The glandular enlargement which in the groin often attains a very large size is another distinctive feature. The disease can, as a rule, be cured only in the very earliest stage—that is to say, in childhood, before it has become inveterate. As already said, however, it is subject to spontaneous remissions, and it can always be greatly mitigated by treatment.

Besnier and the majority of French dermatologists, he has seen the affection begin between the ages of ten and fifteen, and even later. In one of his patients the first symptoms of the disease showed themselves at the age of thirty-five. In nine cases cited by Ehlers (*Bull. de la Soc. Française de Derm. et de Syph.*, 1892) the affection commenced between fifteen and thirty years of age.

CHAPTER V.

AFFECTIONS OF THE SKIN DEPENDENT ON NERVE DISORDER (*continued*).

ERYTHEMA — PELLAGRA — ACRODYNIA — PURPURA — PELIOSIS RHEUMATICA — LUPUS ERYTHEMATOSUS — ROSACEA.

Erythema.—Erythema strictly means nothing more than superficial redness, disappearing on pressure; that is to say, a local congestion of the skin. A good deal of confusion as to the nature of the affection has been caused by the fact that different stages of the same process have been described as distinct diseases, and a further element of perplexity has been imported into the question by classifying the rashes of infectious diseases as varieties of erythema. Erythematous they no doubt are anatomically, but they have no independent existence as pathological processes, and it is illogical to consider them apart from the diseases of which they are manifestations. The eruption of an infectious fever is, in fact, the result of the irritation of certain specific poisonous matters circulating in the blood. The eruptions caused by certain drugs, which are often erythematous in appearance, are the result either of a toxic action of the chemical substance on the nerve centres, or of direct irritation of the peripheral ends of the nerves supplying the integument. These will also be dealt with in a separate chapter ("Artificial Eruptions").

Erythema, as a substantive disease, shows itself under various forms, all of which may, however, be grouped under two heads: viz. (*a*) hyperæmic, (*b*) inflammatory. In the former category the mechanism

of the process consists in localised vascular disturbance, which gives rise to hyperæmia—at first active, but, if the cause persists, soon becoming passive owing to vaso-motor paralysis. The colour of the affected area of skin, which at the outset is bright scarlet, changes, as the blood stream becomes more sluggish, to dull red, deepening as the tendency to stagnation increases to livid blue or purple. In correspondence with the variations in the blood current, the skin at first feels hot both to the patient and to the observer; but the heat subsides as the congestion assumes a passive character, and often, especially in the extremities, the local temperature falls below the normal point. In erythema of the inflammatory type the retardation of the blood current goes on to stasis, exudation of serum takes place, leucocytes escape into the tissues around the vessels, and sometimes subcutaneous hæmorrhages occur. In this way the various lesions—vesicles, bullæ, œdema, and pigmentation—seen *e.g.* in erythema multiforme are produced. If the inflammatory process is severe it gives rise to more serious lesions, such as local asphyxia, ulceration, sloughing, and even gangrene. Widely different as the hyperæmic and inflammatory forms of erythema are in their clinical aspects, pathologically no definite boundary line can be drawn between them.

With regard to the etiology of erythema, individual predisposition is a necessary condition of its development. This predisposition appears to be simply an exceptional instability of the vaso-motor system, rendering it unduly susceptible to irritation. This irritation may be direct, as by the action of cold or heat, acrid discharges, certain vegetable or chemical substances (rhus toxicodendron, mustard, arsenic, etc.), the bites or stings or mere contact of certain insects (fleas, bugs, hairy caterpillars), coarse flannel or dirty

underclothing; or indirect—*i.e.* reflected to the nerves of the skin from internal organs, more particularly the organs of digestion and the female genital apparatus. It is also sometimes a manifestation of the rheumatic poison. It is not always possible, however, to trace an attack of erythema to any distinct cause; in such cases no doubt sources of irritation of one or other of the kinds just mentioned are present if they could only be found.

Hyperæmic Erythema.

Of the hyperæmic type of erythema there are several varieties.

Erythema simplex is characterised by patches of redness, at first scarlet, afterwards pinkish in hue. These may come out on any part of the cutaneous surface, showing a preference, however, for the face and portions of the skin which are in contact with each other or exposed to the air. The affected parts feel hot to the hand and the patient complains of a sensation of burning or itching; there is seldom, however, any fever or systemic disturbance. The redness gradually fades and finally disappears, leaving no discoloration behind. Slight desquamation often accompanies the subsidence of the eruption. The affection may last for an indefinite time. The diagnosis as a rule presents no difficulty. Erysipelas may be excluded by the absence of serious constitutional disorder, by the mildness of the local symptoms, and especially by the fact that the reddened area is not raised and is not bounded by a sharply defined edge. From urticaria, on the other hand, erythema simplex is differentiated by the absence of the characteristic wheals and by the comparatively persistent nature of the eruption.

A variety of erythema simplex which deserves

special mention on account of its recurrent character shows itself in the form of congestive redness of the cheeks and nose. This recurs again and again and may finally become permanent. (See Rosacea.)

Erythema fugax is simply a more transient variety of erythema simplex. Patches of redness come out suddenly on the face or body and disappear in a day or two. In children the eruption is usually the result of reflex irritation, as by teething or disorder of the intestinal tract by unsuitable food, or worms. In adults it is sometimes associated with mental emotion. The redness may be either diffuse, or scattered over the body in irregular patches of varying size. Under this head may be placed the fleeting rashes described by some authors under the designation of "roseola."

Erythema solare or sunburn appears to be an effect of the light rather than of the heat of the sun; the violet rays are thought by some to be the actual agents in its production.* The electric light has been found to cause an erythema indistinguishable from sunburn (Charcot).

Erythema intertrigo, as the name implies, occurs in parts where two opposed surfaces of skin chafe each other (inner aspect of thighs, groins, axillæ, under pendulous breasts, at the lower part of the abdomen, etc.). Infants and fat persons are most liable to the affection; in the former the eruption is commonest on the parts which are chafed by the napkins. The affected surface is reddened and glazed; there is no exudation, but the epidermis is generally to some extent macerated by sweat. Intertrigo is differentiated from eczema by the absence of "weeping," but it must be borne in mind that the latter affection may be induced by

* Bowles, *Brit. Journal of Derm.*, vol. v. No. 8.

irritation similar to that which gives rise to the former. In the case of young children it is sometimes difficult to distinguish intertrigo from the erythema of congenital syphilis. The eruption is very similar in both affections, but while in intertrigo the redness is usually limited to the parts covered by the napkins, in congenital syphilis it extends down the legs, often to the heels and the soles of the feet.* The chief point of distinction, however, is that if the affection is syphilitic, other characteristic lesions are sure to be present.

Erythema paratrimma is a term sometimes used to denote the effect of long-continued pressure on a particular part of the skin, as from long continuance in the recumbent position. The mechanical effects of pressure are aggravated by the irritation of urine and fæces when the patient is not properly nursed, and by conditions which lower the vital power, particularly by lesions of the spinal cord which interfere with the nutrition of the part. This form of erythema, if not carefully attended to, is certain to end in bed-sore.

Erythema scarlatiniforme is a febrile affection characterised by an eruption closely resembling that of scarlet fever, but not contagious. The onset is marked by shivering and systemic disturbance, which is accompanied or quickly followed by the appearance, on the trunk or elsewhere, of efflorescences, vivid red in colour and variable in size. These often run together so as to cover extensive areas of skin. The tongue is foul and has a more or less distinct "strawberry" character, and there is usually some reddening of the fauces with soreness of the throat. The fever speedily subsides, and before the eruption has begun to fade desquamation begins. The average

* Crocker: "Diseases of the Skin," 2nd ed., p. 62.

duration of the affection is from two to six weeks, but in some cases it lasts much longer. Two distinct types of erythema scarlatiniforme can be recognised clinically—one running a more or less definite course and disappearing after a few weeks; the other more severe and prolonged. Relapse is not uncommon, a fresh crop of eruption coming out before the first has disappeared. Erythema scarlatiniforme shows a very marked tendency to recur, sometimes every year, sometimes at shorter intervals. Those subject to it can generally tell beforehand when an attack is impending. Various complications—pulmonary, cardiac, renal, etc.—have been described in association with erythema scarlatiniforme,* but it appears more probable that such conditions, or the drugs employed to combat them, may have been the exciting cause of the skin affection.

The etiology of the disease is by no means clear. A certain idiosyncrasy on the part of the patient is required, and among the exciting causes one of the most potent appears to be exposure to a very high temperature. Crocker† has seen it in connection with sewer-gas poisoning. In a large number of the cases reported by French dermatologists—to whom we are chiefly indebted for the recognition of the disease—the use, internally or externally, of certain drugs, notably mercury, would seem to have played an important part in its causation (see "Artificial Eruptions"); but the fact that erythema scarlatiniforme may occur when the possible influence of drugs or toxic agents of any kind can be absolutely excluded justifies us in placing it provisionally among the erythemata proper. Rheumatism, ague, syphilis, and alcoholism have been indicated as possible causes of

* Besnier and Doyon's French translation of Kaposi, 2nd edition, vol. i. p. 343.

† "Diseases of the Skin," 2nd edition, London, 1893, p. 60.

the affection, but in all these cases it is obvious that the real source of the mischief may be mercury, salicylate of soda, or some other drug.

Erythema scarlatiniforme derives its chief importance from its resemblance to scarlet fever. This is so close that the most experienced observer may be unable to give a definite opinion as to the nature of the rash during the first few days. The most striking point of distinction is the early commencement of desquamation in erythema scarlatiniforme, and the fact that it begins when the eruption is still in the florid stage—as early as the second day if the patches are carefully examined with the lens,* and at latest on the third or fourth day. Again, in scarlet fever the eruption does not last longer than ten days, whereas in erythema scarlatiniforme it persists several weeks, and sometimes indefinitely. In the case of a person who has had previous attacks, the history will often be helpful; but in all cases it will always be safest to isolate the patient till the diagnosis is clear. It is probable that in some at least of the cases in which recurrence of scarlet fever has been reported the disease in one or other of the attacks has really been erythema scarlatiniforme. From pityriasis rubra, to which the affection under consideration bears a good deal of resemblance, it may be distinguished by the less general diffusion of the scaliness and by the repetition of the desquamative process.

Rubeoloid erythema—that is, an "ephemeral" eruption of measles-like character—has been described by Besnier; but he himself admits that when "abortive measles without catarrh, rubeola, and the unlimited series of modified roseolæ are eliminated, there remain very few true rubeoliform erythemata."† I only mention it here on the authority of

* Besnier and Doyon: Op. cit., vol. i. p. 341.
† Op. cit., vol. i. p. 337.

that distinguished dermatologist as affording a possible clue to errors of diagnosis which are occasionally a source of annoyance to practitioners.

Scarlatinoid erythema, described by Besnier and Doyon* as an eruption exactly similar to that of scarlet fever, always associated with an infectious disorder, which is generally of febrile character (puerperal fever, septicæmia, etc.), is probably, as Stirling thinks, † simply scarlet fever contracted by the entrance of the specific virus through the uterus, or operation wound.

Inflammatory Erythema.

Under this heading may conveniently be grouped certain diseases which, differing in some particulars, are all characterised by lesions of an inflammatory erythematous nature.

Erythema pernio, or chilblain, is characterised by the development of small patches, dusky red or bluish in colour, and slightly raised; these generally form on the hands (edge and dorsum of fingers) and feet (heel and outer edge, especially about the little toe); but they may occur at any part distant from the heart, where the local circulation is much exposed to the influence of cold air (nose, ears, cheeks). Subjectively, the symptoms are great tenderness of the affected parts and itching, which becomes almost unbearable when they get warm. The subsidence of the inflammation is frequently followed by desquamation. If neglected, the skin often breaks and ulcers of greater or less extent may form, particularly in underfed or tuberculous children. Chilblain is more common in childhood and old age than in adult life. It has been suggested that the disease is of

* Op. cit., p. 354.
† St. George's Hosp. Reports, 1880.

tuberculous origin; * but there is no cogent evidence of such a connection. Scrofulous children are undoubtedly more liable than others to chilblains; but that is on account of the anæmia which is so pronounced a feature in the tubercular diathesis. The disease is a result of local disorder of the circulation. The arterioles are at first contracted under the influence of cold; but this condition soon gives way to dilatation from vaso-motor paralysis, and the other phenomena of the inflammatory process follow in due course.

In connection with chilblain, **frost-bite,** which is pathologically a further stage in the same process, may conveniently be considered. The first effect of the cold is to blanch the part (fingers, nose, or other extremity) by constriction of the vessels; dilatation follows, and the part becomes congested and swollen, assuming a peculiar violet colour. Some itching and pricking are usually complained of. In the milder cases the skin soon resumes its natural appearance; but sometimes the capillaries remain dilated, causing permanent erythema. In serious cases vesicles form. This is a sign of ominous import. The severer degrees of frost-bite, in which gangrene of a part occurs, belong rather to the domain of general surgery than to that of dermatology.

Erythema keratodes.—Under this name Brooke † has described a rare form of sharply circumscribed chronic erythema of the palms and soles, leading to overgrowth of the horny tissue and accompanied by œdema and tenderness which interfere considerably with movement. Besides the lesions on the palms and soles, more or less horny erythematous nodules are seen on the back of the

* Cazin and Iscovesco: Congrès Intern. de Dermatol. et de Syphilis tenu à Paris en 1889; *Comptes-Rendus*, p. 511.

† *Brit. Journ. of Dermatology*, 1891, p. 335, *et seq.*

finger joints. The affection begins with the development on the palms and soles of red patches which speedily coalesce. The thickening of the epithelium quickly follows the first signs of inflammation. The surface of the skin is smooth and the furrows well preserved. The progress of the affection is gradual; it responds readily to treatment, but tends to relapse. In this respect it differs from the affection described by Besnier * under the name of *keratodermia erythematosa symmetrica*, which is continuous. Brooke thinks the symmetry of the lesions, in conjunction with the synchronous implication of both hands and feet, indicates a central tropho-neurosis as the cause. Dubreuilh, however, who has recorded a similar case, † says that the symmetry of the lesions is no proof of such an origin, and that the rapid and complete cure by treatment mainly local does not accord with the hypothesis of a central neurotic origin.

Erythema multiforme is an inflammatory affection of the skin characterised by a polymorphous eruption, in which papular, vesicular, bullous, nodular, and hæmorrhagic elements are mingled together, or succeed each other, so as to form a clinical picture almost kaleidoscopic in its infinite variety. As Besnier and Doyon truly say, "You may pass twenty years of your medical life in observing and collecting cases of erythema, and each year will bring you forms which you have never before seen. Not only does this variety defy all complete description, but categories *ad infinitum* would be needed if one wished to classify all the facts in methodical series. The authors who have attempted to do so have invariably failed, and have only succeeded in producing undigested and useless compilations." ‡ All that can

* "Intern. Atlas of Rare Skin Diseases," Pl. v. Fig. 1.
† *Brit. Journ. of Dermatology*, 1892, p. 185, *et seq.*
‡ Kaposi: "Maladies de la Peau," Besnier and Doyon's

be done here is to indicate the salient points—the types of the different forms assumed by the process in the various stages of its evolution. To these typical forms distinctive names have been given, as erythema papulatum, erythema annulare, and so forth. These names serve a useful purpose as indicating the predominant character of the lesions in a particular case, or at a given time. It must be clearly understood, however, that they denote not different diseases, but phases in the same process.

The eruption, which is generally more or less symmetrical in distribution, first shows itself, as a rule, on the back of the hand and the dorsum of the foot; it may, however, appear on any part of the body. In the progress of the disease the fore-arm and arm, the leg and the thigh, and the trunk and face may be invaded. In exceptional cases the mucous membrane of the mouth and pharynx and the conjunctiva may suffer. The backs of the hands seldom escape; otherwise the disease follows no rule, either as to the extent of surface over which it is distributed or as to the points which it selects for attack.

Erythema multiforme is often ushered in by rise of temperature, congestion of the pharynx, gastro-intestinal disturbance, and other signs of systemic disorder. Pain in or about one or more of the joints is perhaps the most constant of these premonitory symptoms. Any or all of them, however, may be absent, and the temperature may be below, instead of above, the normal standard. The eruption, as already said, is markedly polymorphous not only in the form, but in the nature of the lesions. As Jamieson points out,* however, in their evolution

translation, 2nd edition, tome i. p. 364, Paris, 1891. Translators' footnote.

* "Diseases of the Skin," Edinburgh, 1888, p. 87.

a gradual rise from simple to more complex forms can usually be traced. Thus the commencement of the process is marked by the appearance of a crop of papules no larger than a pin's head, of a bright red colour which fades on pressure, and hard and distinctly hot to the touch (erythema papulatum). These papules quickly spread centrifugally so as to form small tubercles (erythema tuberculatum); or, if closely grouped together, they may coalesce and form raised patches of the size of a threepenny or sixpenny piece. Each patch presents a sharply defined border, and has an areola of congested skin around it; the centre is of a less vivid red than the edge, and its tint soon deepens to violet, then to purple. Bullæ occasionally develop on the patches, and after a time shrink and form scabs. The eruption may disappear in a few days, leaving behind it only a slight brownish discoloration. More commonly the centre of the patch undergoes absorption, while the edge continues to advance. In this way rings of varying circumference are formed, the centre of which is depressed and pale or bluish-red in colour, while the edge is raised and of a florid, scarlet hue (erythema annulare). These rings, as they enlarge, come in contact with others. This leads to the disappearance of the eruption at the points where the edges meet, so that only segments of the pre-existing circles remain, either isolated or variously joined in the form of curves or wavy lines (erythema gyratum). Some of these may continue to spread as narrow raised bands with a sharply defined edge (erythema marginatum). As fresh crops of papules continue to come out from day to day, several or all of the phases that have been described may be present in one case at the same time. The multiformity of the lesions may be still further increased by the formation of vesicles and bullæ on the patches

and on the centre and borders of the rings, by scabs, and by escape of the colouring matter of the blood or actual hæmorrhage beneath the epidermis. The average duration of the individual lesion in erythema multiforme is little more than a week, but the process as a whole usually lasts a month or six weeks; and as recurrence is very common and often takes place at short intervals, the duration of the disease may sometimes appear to be indefinitely prolonged.

A particular form of erythema multiforme requires separate mention, because its appearance is so characteristic as almost to entitle it to be classed as a distinct disease, and because, as a matter of fact, it often occurs independently of any of the other lesions that have been described.

Erythema iris is met with under two typical forms. One of these begins as a small red spot. On this, in a few hours, a vesicle forms, and around the vesicle a zone of redness quickly develops. The central vesicle soon dries up, leaving a small scab, and a ring of secondary vesicles forms on the red zone encircling it. When the central scab separates, the skin underneath presents a blue, congested appearance, which takes some time to disappear. The process here described may be repeated several times, the concentric rings of vesicles and reddened skin producing an appearance not unlike a target. There may be only a single lesion of the kind, or there may be several scattered about the wrists, arms, and legs. On the fingers, owing probably to the anatomical peculiarities of the part, the target-like appearance is not so well marked. The other form is characterised by the development of a large central bulla surrounded by a ring of vesicles of considerable size; hence the misleading name of **herpes iris** is often applied to it. Another ring of vesicles may develop outside the first, and there is sometimes a third one outside that. The

intervening circles of skin are of a purplish hue. In both these forms the process is essentially that of erythema multiforme, the vesication being only an accidental complication.

Although, as has been stated, erythema iris may occur independently of any other form of eruption, it is often associated with the more ordinary lesions of erythema multiforme. In my own experience it is more apt to occur alone in cold weather, in policemen and other persons whose occupation involves a good deal of exposure. The condition runs a definite course, lasting from two to three weeks, and leaving only a brown stain behind it.

The subjective symptoms in erythema multiforme are not, as a rule, of any importance. The fever does not always subside with the appearance of the eruption, and in that case some degree of malaise may be complained of; but this seldom persists for more than a very few days. There is not generally any itching or burning, and when this sensation is present it is never very severe. In children pyrexia and the other constitutional symptoms are more marked than in adults, and the lesions are apt to be more severe, the vesicles becoming transformed into pustules, and being followed by scarring.

Clinically there are two types of erythema multiforme—viz. the ordinary form which runs a benign course and ends, after a longer or shorter series of relapses, in complete recovery; and a malignant form, in which the local process is altogether overshadowed by formidable complications, such as pericarditis and endocarditis, and which usually ends in death.

Of the etiology of erythema multiforme nothing definite is known beyond the fact that it is closely connected with rheumatism, or at any rate with the cause of that condition. In many cases a clear history of rheumatic fever is forthcoming, while in

others there is evidence of a rheumatic or gouty inheritance, or the patient presents the marks of the "rheumatic diathesis" (sour sweat, etc.). The cardiac complications which have been referred to as occasionally occurring in cases of erythema multiforme of the malignant type are probably of rheumatic origin. That season has some influence on its development is shown by the fact that attacks are more common in spring and autumn than at any other time of the year. Some persons are subject to annual recurrences at those seasons. All forms of the disease are more common in females than in males.

The pathology of erythema multiforme is summed up in the statement that the process is angio-neurotic in its nature. It only differs from hyperæmic erythema in the fact that exudation is a far more pronounced feature than it is in the latter.

The diagnosis seldom presents any difficulty, the appearance of erythema iris being so characteristic as to make it impossible to mistake it for anything else, and the multiformity of the lesions in other cases being sufficient to differentiate the disease from other conditions. Occasionally urticaria of the papular variety bears some resemblance to erythema papulatum, but the latter can usually be identified by the absence of itching, by the longer persistence of the lesions, and by the fact that they leave stains. In the papular stage of eczema, again, the itching is a very marked feature.

The prognosis is, in the vast majority of cases, good as regards the particular attack, but recurrence is almost certain, and it is quite impossible to predict that the patient will remain free from the disease. If serious complications occur, the forecast must be based on them, not on the skin affection.

Erythema nodosum is characterised by the formation of node-like swellings on the legs and feet,

less frequently on the fore-arms, thighs, buttocks, and over the scapulæ, and in rare cases on the face. The distribution of the swellings is generally symmetrical; they come out in crops of two or three at a time, the first point of attack being generally the leg, along the tibia. Their appearance is preceded and accompanied by a greater or less degree of constitutional disturbance, one constant symptom being pain of a rheumatic character about the joints, especially of the lower limbs. The swellings are oval in shape and lie with their long axis corresponding to that of the limb. They have no well-defined border, and vary in size from a walnut to a hen's egg. At first bright red in colour, they soon become bluish in the centre and purple at the circumference, and as they subside they exhibit the various changes of tint that are seen in a bruise. They are not, as a rule, painful, but are very tender on pressure. Firm and tense in the beginning, they soon soften and give a sensation somewhat resembling fluctuation to the finger, but they never suppurate. The individual swellings last about a fortnight; but as fresh ones come out in successive crops for two or three weeks, the duration of the affection averages from three to six weeks.

Erythema nodosum is very rare after the age of twenty, and girls show a greater proclivity to it as compared with boys in the ratio of about two to one. It is more common in the spring and the autumn than at other seasons of the year. Exposure to cold, and especially, according to Crocker, to brine-laden winds, is frequently an exciting cause. Stephen Mackenzie* has shown from an analysis of 108 cases that erythema nodosum is frequently associated with rheumatism. Even when no actual rheumatic lesions

* Clin Soc. Trans., vol. xix. p. 215.

are present the patients often present the signs of the rheumatic diathesis. The affection is sometimes complicated by endocarditis or some other acute cardiac mischief. One attack predisposes to others, and in those subject to it the disease is apt to recur yearly at the same season. The pathology is that of hyperæmic erythema. Local vaso-motor disturbance is followed by inflammatory effusion of fluid and escape of white blood-corpuscles.

There is seldom any room for doubt as to the nature of the affection. The appearance of the lesions and their association with pains in the joints are characteristic. I have, however, known instances in which erythema nodosum on the face has been mistaken for tubercular leprosy. It must also be distinguished from a form of erythema of the legs to which young girls are sometimes subject. The latter affection is, however, much more chronic in course and may last for months. Its characteristic feature is the appearance of indurated patches of infiltration, red or livid in hue, on the legs, which often break down, leaving ulcers very similar to tertiary syphilitic lesions. This erythematous affection appears to be mainly or often a result of fatigue from standing too much, and the patients always show signs of the lymphatic constitution. Another variety of node-like swelling which is of not infrequent occurrence in the legs of young women suffering from varicose veins should also be mentioned; these swellings are nodules due to capillary phlebitis. In neither of these affections, however, are there any concomitant rheumatic symptoms.

The prognosis in uncomplicated cases of erythema nodosum is always favourable, the disease tending to subside spontaneously after running its course. It is, however, as already said, not unlikely to recur. If any serious cardiac complication be present, the

prognosis must be based on that and not on the skin affection.

Pellagra is a tropho-neurotic affection, endemic in northern and central Italy, in the northern part of Spain, and in Roumania.* It generally commences in the spring with symptoms of malaise, pains in the joints, a burning sensation in the back, radiating through the limbs to the hands and feet, and gastro-intestinal disturbance. An early symptom is spastic paresis of the lower limbs.† The skin affection consists of an erythematous eruption, chiefly affecting parts exposed to the sun. The skin is swollen and tense, and is the seat of burning or itching sensations; petechiæ are frequent, and bullæ also occur, which on rupturing leave indolent ulcers. In about a fortnight from the commencement of the attack the erythema subsides, and desquamation follows, leaving the underlying skin thickened and stained to the colour of *café au lait* or sepia. The symptoms usually subside towards the end of summer, only to reappear, however, in the following spring. The attacks thus recur regularly every year, the thickening and pigmentation being increased on each occasion in the first four or five years. Afterwards the integument undergoes atrophy, and becomes dry and wizened as in old age. This is especially marked on the backs of the hands. The nails and hair show no change. When the patient has suffered from the disease for three or four years he becomes weak, wastes, his vision becomes dimmed, swallowing is painful, colliquative diarrhœa sets in, symptoms of cerebro-spinal irritation increase, and he sinks into a typhoid

* In 1888 there were 10,626 persons in Roumania suffering from pellagra, in a total population of 5,339,650 (Dodun des Perrières, *Rev. Méd. de l'Est*, September 1, 1893).

† Belmondo: "Le alterazioni anatomiche della midolla spinale nella pellagra e loro rapporto coi fatti clinici" (*Rivista Sperim. di Freniatria e Med. Leg.*, vols. xv. xvi., 1889-90).

condition, in which he passes away. Insanity is an extremely frequent complication, the mental disorder chiefly showing itself in the form of melancholia, with marked suicidal tendencies. The disease lasts on the average five years; in mild cases patients may live ten or fifteen years. Poverty, insufficient nourishment and insanitary surroundings are predisposing causes; the immediate etiological factor is generally believed to be the prolonged use as food of decomposed or fermented maize, which has a toxic effect analogous to ergotism. De Giaxa thinks the disease may be caused by the use of even sound grain by imperfectly nourished individuals, auto-intoxication being caused by the formation of toxic substances in the intestine, owing to modifications in the substances of which the grain is composed.* The disease is most common between the ages of thirty and fifty; females are more often attacked than males, and children are less liable than adults. Pathologically, pellagra consists in a toxic effect on the vagus and sympathetic nerves, giving rise to hyperæmia and inflammatory processes in the membranes of the brain, in the liver, spleen, kidneys, etc.; to atrophy of the principal viscera and of the skin; and to fatty degeneration of various organs.

The diagnosis can hardly ever be doubtful, the disease being limited to a particular class of patients who are exposed to special influences, and presenting features so clearly differentiating it from other affections. The prognosis is very gloomy, except in very slight cases, when the patient can be rescued from the influences which have caused and continue to aggravate his disease.

* Contributo alle cognizioni sull' etiologia della pellagra ("Annali dell' Istituto di Igiene Sperimentale," vol. ii., fasc. 1, and vol. iii., fasc. 1). These papers embody the results of a most exhaustive investigation into the etiology of pellagra.

Acrodynia is closely allied to pellagra and ergotism. The disease so far has been observed chiefly in France, where it has several times occurred epidemically in the army. The affection is a form of erythema, the eruption being preceded by gastro-intestinal disturbance, conjunctival congestion and œdema of the face, with aching and numbness in the limbs, pricking and burning in the palms and soles; the sensitiveness of the skin in the latter situations is at first increased, and afterwards abolished. The eruption, which consists of erythematous patches sometimes intermingled with papules and bullæ, comes out chiefly on the hands and feet, sometimes extending over the limbs to the trunk. It is followed by exfoliation of the epidermis, a blackish discoloration being left in the affected parts, especially in warm regions, as between the thighs. In severe cases wasting and paresis of the limbs are sometimes observed. The eruption is not, as a rule, accompanied by any febrile phenomena, and the disease hardly ever proves fatal, except in elderly or weakly subjects, who sometimes succumb to diarrhœa. Recovery generally takes place in a few weeks. The etiology of acrodynia is obscure; it has been ascribed to some toxic element in the food, but of this no proof is forthcoming. There are no post-mortem changes that can be called characteristic of the affection.

Purpura is an advanced stage in the angio-neurotic process. Like dropsy, it is not a substantive disease, but the result of pathological processes that may occur in a number of different morbid conditions. Some confusion is still not infrequently caused by a survival of the erroneous view of the older authors, who looked upon purpura as an independent nosological entity. It is in reality nothing more than the extravasation of blood into the cutis. This may

take place either as a mechanical effect of over-dilatation or as the result of changes in the blood or in the vessels, or of impaired nerve control. The hæmorrhage gives rise to different appearances in the skin, hence various names have been given to purpuric lesions according to their shape. Thus the extravasation may cause spots or *puncta*, lines or *vibices*, small patches or *petechiæ*, or diffuse patches, *ecchymoses* or bruises. In all these forms the note of the lesion is that it cannot be obliterated by pressure with the finger, showing that the discoloration is due to effused blood, not to congestion. The lesion, so far as it concerns the dermatologist, is referred to in dealing with the various affections in which it occurs, but it may also be a symptom of certain toxic conditions, such as the exanthematous fevers, some drug eruptions, and scurvy. It is so frequently associated with rheumatism that a special description is necessary.

Peliosis rheumatica is an acute disease, the symptoms of which are pains in the joints with purpuric spots appearing in patches, especially in the neighbourhood of the joints in which the pain is most severe. It bears a general resemblance to some forms of erythema multiforme, but the articular pain is generally more pronounced, and the sub-epidermic hæmorrhages, instead of being occasional, are constant, and form the only lesion of the skin. The onset of the affection is marked by constitutional disturbance; swelling of the joints with pain comes on, and a day or two later the eruption appears, usually during the night. The spots always come out on the knees and ankles, and often on the elbows and wrists, but the trunk is seldom attacked. The pain in the joints frequently abates or ceases on the appearance of the eruption. The lesions consist of slightly raised papules or patches, bright red at first, but not fading on pressure. They soon change colour,

becoming purplish and then black; they are, in fact, obviously hæmorrhages, and exhibit the usual discoloration of the skin caused by extravasated blood. The affection in the acute stage lasts only a few days, but recurrence may take place in two or three weeks, and this may be repeated; so that the affection altogether may last several weeks or even months. Like erythema nodosum, peliosis rheumatica is an affection of rheumatic nature, the skin lesions being secondary to the constitutional condition. It frequently complicates rheumatic fever; while, on the other hand, cardiac mischief sometimes arises in the course of peliosis rheumatica and becomes permanent, when there has been absolutely nothing to show that true rheumatic fever was present.

Peliosis rheumatica has practically the same etiology as rheumatism. Patients who have suffered from the latter are more predisposed than others to the former. Women are more often affected than men. The disease is most common between the ages of 20 and 30, but is not unknown in children. Of exciting causes, all that can be said with any approach to certainty is that chills appear to have a definite influence in the development of the affection.

Pathologically, the disease is of angio-neurotic nature, the process being carried a step beyond exudation of serum or effusion of hæmoglobin, as in erythema multiforme, and actual hæmorrhage taking place. Why hæmorrhage should be a constant phenomenon is not clear, though it may be conjectured to be due to some alteration in the constituents of the blood dependent on the underlying constitutional state.

Peliosis rheumatica can hardly be mistaken for any other disease, the combination of pain in the joints, with a purpuric eruption around them, being almost absolutely distinctive.

As regards prognosis, in uncomplicated cases

recovery is certain to occur, but recurrence is almost as certain. When grave complications are present they must be taken into account in forecasting the issue of the disease.

Lupus erythematosus (Plate I. Fig. 3, Plate IV. Fig. 3, Plate VII. Fig. 2), or, as I would prefer to call it, erythema atrophicans, is an inflammatory process giving rise to cellular infiltration, ending in atrophy of the affected part of the skin. It begins by the appearance of "primary eruptive spots" (Kaposi), characterised by a red, elevated hyperæmic and infiltrated border, with a central scar-like depression, which is either smooth or covered with a dry, firmly adherent scab or thin papery greyish scales (Jamieson). These small red spots fade on pressure. The distribution of the lesions is frequently symmetrical. When the disease attacks a part provided with sebaceous glands, the skin is usually covered with small adherent scales of sebum, which at the margin of the patch plug the dilated orifices of the glands, thus forming numerous comedones. In parts where the adherent scales become detached, these plugs are seen hanging from their under surface as thready tags. In some cases this sebaceous covering is absent and then the erythematous character of the lesion is more evident. The affected area is often surrounded by a zone of dilated blood-vessels. In its evolution the process follows one of two principal types—spreading either by the peripheral enlargement of single spots (*lupus erythematosus discoides*) or by the successive appearance of fresh crops of spots, which coalesce and form patches of considerable size (*lupus erythematosus aggregatus* or *disseminatus*). The former may also be distinguished as the "slow-spreading," the latter as the "eruptive," form of the disease.

Crocker* describes a "telangiectic" form "in which

* "Diseases of the Skin," 2nd ed., p. 492.

there is no marked change of the surface except persistent circumscribed redness, which close inspection shows to be due to dilated vessels." This is commonly situated symmetrically on both cheeks, the affected area being very much of the size and shape of the red patch which the clown paints on his face, and is not very noticeable to the eye, though on pinching up the tissues marked thickening can be felt.

The face is the part most commonly attacked by lupus erythematosus, especially by the discoid variety of the disease. The lesions usually appear symmetrically on both cheeks, where they form wide blotches, which spread inwards and meet in a narrow strip over the bridge of the nose, thus giving rise to the "butterfly" or "bat's-wing" appearance characteristic of the disease. On the other hand, in some cases the process has its starting-point on the nose, and extends thence outwards across the cheeks. It occasionally begins on the helix of the ear, the tip of the nose, the scalp, the hairy part of the face, or the margin of the lips; in rare cases it commences on the nape of the neck. Next in order of frequency to the head and neck as points of attack come the hands and the feet; neither the flexor nor the extensor surfaces are spared. In some rare instances the trunk is invaded in several places; the mucous membrane of the inner surfaces of the lips and cheeks, the soft palate and the larynx, may also be attacked, usually by extension from the skin.

The disease runs a very slow course. The lesions continue to enlarge for ten, fifteen, or twenty years, when the process seems to have, as it were, spent itself, leaving, however, ineffaceable atrophic scars and, in hairy parts, permanent baldness. In certain circumstances, especially when the disease is of the aggregate or disseminated type, the inflammatory

process may be quickened into greater activity, so that it sometimes resembles severe persistent erysipelas. In such cases the change in the character of the inflammation is heralded and sometimes accompanied by fever and systemic disorder. Kaposi describes cases in which the constitutional derangement is so great that the disease often ends in death. I have never, however, met with such cases in my own practice, nor have I heard of such in the practice of other English dermatologists, and I can only conjecture that in these cases the local affection had become complicated by erysipelas or some other acute infective process grafted upon it.

Lupus erythematosus may be distinguished from other varieties of erythema by the slowness and persistence of the process. The lesion itself, with its depressed central cicatrix, surrounded by a raised red border, studded with comedones, is sufficiently characteristic to enable it to be identified on the face. On the hands, however, it often resembles chilblain so closely that the diagnosis must rest chiefly on the fact that chilblain disappears in the summer, and in the winter usually yields readily to treatment.

In rosacea the lesion has no central cicatrix and no scab adhering to its surface. Ringworm, which occasionally simulates lupus erythematosus, runs a more rapid course, and its lesions present the characteristic fungus when examined microscopically. The points of distinction between lupus erythematosus and lupus vulgaris are of special interest and importance. They will be fully discussed under the heading of "Lupus vulgaris;" but the chief points may be summarised here as follows:—1. In lupus erythematosus the primary lesions are minute red points; in lupus vulgaris soft apple-jelly nodules. 2. Ulceration, which never occurs in lupus erythematosus, is frequent in lupus vulgaris. 3. Lupus

erythematosus never penetrates below the surface; lupus vulgaris often attacks the deeper parts (cartilage, etc.); hence the old division of lupus into *exedens* and *non-exedens*. 4. While lupus erythematosus always develops at or after puberty, lupus vulgaris almost invariably shows itself before that period.

The etiology of lupus erythematosus is obscure. Sex appears to be a predisposing factor, two-thirds of the subjects of the disease being women. Many of these are chlorotic, and a tuberculous inheritance or tendency is sometimes associated with the disease. In the great majority of cases that have come under my own observation, however, the patients have shown no sign whatever of constitutional taint or weakness. Lupus erythematosus seldom begins before twenty-five or after forty-five. Its immediate starting-point is often a congestive seborrhœa of the nose, either occurring spontaneously or as a sequel of erysipelas, small-pox, or scarlet fever. The immediate cause of the affection is some local disturbance of the circulation; this may be due in some cases to an external agency, such as cold or heat—a circumstance which helps to explain the marked preference shown by lupus erythematosus for exposed parts of the body, such as the face and hands. In other cases the circulatory disturbance is doubtless due to nerve disorder. L. Perrin, of Marseilles, has recorded the case of a girl aged eighteen who, after a violent mental shock at the time of the earthquakes of 1887, followed by temporary mania and suppression of menses, developed lupus erythematosus of the disseminate variety. Perrin thinks—and I am disposed to agree with him—that the nervous shock here paved the way for the pathological process.

The pathological process is essentially inflammatory in nature. According to Veiel,* the primary and

* Trans. Internat. Med. Congress, London, 1881, vol. iii. p. 167.

essential feature of the disease is an accumulation of blood corpuscles in the dilated capillaries in the papillary layer and the corium, with cell infiltration in the neighbourhood of the blood-vessels. Kaposi * showed that the inflammatory process does not always begin in the sebaceous glands, as used to be taught. The most recent researches have proved that it begins in the blood-vessels of the superficial layers of the cutis.

Microscopic sections show heaping up of small cells which have escaped from the vessels by diapedesis. These cells are especially abundant around the hair follicles and the sebaceous and sudoriparous glands. The small vessels become thickened, and proliferation of connective-tissue corpuscles and epithelium takes place.

Granular and fatty degeneration and disintegration of the cellular elements occur, resulting in the formation of a thin scar-like cutis destitute of glands or hair follicles, covered by an atrophied epidermic layer. In short, the process presents the usual characters of slow inflammation, the only feature that can be called characteristic being the peculiar cicatricial atrophy to which it leads.

There is at present no evidence, either clinical, anatomical, or bacteriological, that lupus erythematosus is of tuberculous nature. My own view of the disease is that it is a distinct pathological entity and not a cutaneous tuberculosis. I base my belief on this point not only on the negative results of microscopic and experimental research, but on positive clinical facts, which, to my mind, have more weight than the presumptive evidence of hereditary tendency or possibility of infection, on which those who hold the affection to be of tuberculous nature rely. Thus lupus erythematosus never ulcerates, whereas

* Trans. Internat. Med. Congress, London, 1881, vol. iii.

tubercular lesions have a strong tendency, sooner or later, to break down. Lupus erythematosus spreads at the edge, not by development of nodules in the corium. The symmetrical arrangement of the patches in lupus erythematosus is also in favour of their being of non-tuberculous nature. Again, lupus erythematosus never occurs in children, whereas lupus vulgaris, which is a tuberculous process, usually begins before puberty, often in early childhood. Again, while in lupus vulgaris tuberculous disease of bones, joints, and glands is a frequent concomitant, this is extremely rare, if it ever occurs, in lupus erythematosus. I have never seen such an association in any of my own cases. The worst case—that is, the one in which the disease was most extensive and prolonged —was shown at the International Medical Congress* in London in 1881. The disease had then lasted nine years, and the patient died five years afterwards of apoplexy. Almost the whole of the integument was diseased, but there was no evidence of any associated tuberculous lesion. Another point is that when the appearance of the lesions on the face is not sufficiently characteristic to justify a positive opinion as to their nature, the doubt is often cleared up by the presence of symmetrical atrophy inside the concha and on the lobe of the ear or on the scalp—parts which are not usually attacked by lupus vulgaris.

In spite of careful research by competent investigators, no specific micro-organism has been found in connection with lupus erythematosus. It is possible, however, that when acute inflammation supervenes this may be due to the invasion of the infected parts by a micro-organism such as the streptococcus of erysipelas.

* Trans. Internat. Med. Congress, London, 1881. Museum volume, p. 98.

Under the name of *lupus vulgaire erythématoïde* Leloir * has described a class of cases in which lupus erythematosus is closely simulated by lupus vulgaris. The process usually affects the face and, in exceptional cases, the neck and trunk; never, apparently, the limbs. The lesion occurs as a patch of greater or less size, sometimes as two or three patches, beginning generally on one cheek. It is usually confined to one side, but in some cases attacks the nose and both cheeks symmetrically, so as to produce the classic appearance of the "butterfly" or "bat's wing." The appearance of the surface closely resembles that of true lupus erythematosus, but frequently, on stretching the skin about the spreading edge of the disease, small yellowish nodules having the characters of ordinary lupus nodules can be more or less distinctly recognised. The patches never ulcerate, but a tendency to cicatrisation may be seen at the edge, which is never observed in true lupus erythematosus. The process is extremely chronic, and, in spite of its relatively benign appearance, is very refractory to treatment. In some cases, after a longer or shorter period of time, lupus nodules may gradually invade the whole surface of the patch or a considerable part of it. This is what used to be described as the "transformation" of lupus erythematosus into lupus vulgaris. The process is, however, in reality nothing more than the transformation of the diffuse and flat infiltration of lupus vulgaris erythematoides into a nodular raised infiltration. In two cases Leloir has seen this form of lupus vulgaris extending from the cheek to the inside of the lip, and he suggests that the cases in which lupus erythematosus is reported to have attacked mucous membranes were really examples of the erythematoid variety of lupus vulgaris.

* *Journ. des Mal. Cutan. et Syph.*, May, 1891.

It is unquestionably the fact that lupus erythematosus may in certain parts, as, for instance, the lips, become very nodular and approximate closely in appearance to lupus vulgaris. It sometimes, though rarely, affects mucous membrane. I have at present under my care a man in whom the disease has attacked the inside of the lower lip. Leloir has supplemented the clinical evidence pointing to the true nature of the affection which he describes by experimental inoculations of diseased tissue from six cases (four of lupus vulgaris erythematoides of the skin and two of mucous membrane); in all, positive results were obtained. He also found tubercle bacilli in small numbers. The microscopic appearances varied in different cases, but, as a rule, partook to a greater or less extent of the characteristic features of both affections. A point considered by Leloir to be of great importance as justifying the classification of the disease with lupus vulgaris is the constant presence of giant cells, which are never met with in lupus erythematosus. The hybrid affection here described by Leloir has been, in all probability, the source of much of the confusion that has hitherto surrounded the subject of lupus erythematosus.

Rosacea is in its simplest form nothing more than temporary congestion of the face caused by reflex circulatory disturbance (Plate VII. Fig. 1). At first the flushing comes on after eating or exposure to changes of temperature, or, in women, just before the menstrual period; the condition, however, gradually becomes chronic, the skin in the middle third of the face becoming permanently reddened, the point of maximum intensity being in most cases the nose. Subsequently there is almost always considerable dilatation of the superficial vessels. After a time hypersecretion and retention of the sebaceous matter occur, followed in some instances by inflammation. The affected area is thus

studded with pimples marking the obstructed ducts. This is the condition popularly known as "grog-blossoms," a designation as unscientific as it is uncharitable, for though drink is an aggravating circumstance, the affection is often seen in the most temperate persons. The disease sometimes passes into a further stage, the chronic inflammatory process giving rise to hypertrophic thickening, with lobulation of the skin of the nose. This is particularly seen in habitual spirit drinkers who are much exposed to the weather, cabmen furnishing a large proportion of victims. The hypertrophy occasionally takes the form of pendulous masses.

Rosacea is much more common in women than in men, owing, doubtless, to the periodical disturbances of the circulatory equilibrium to which they are subject. Indeed, women who have passed the "change of life" show even less proclivity to the affection than men of the same age. Over-indulgence in alcohol, chronic dyspepsia, feebleness of circulation, and exposure to sudden changes of temperature may all help to cause it, especially when two or more of these factors are combined; the use of cosmetics containing irritant substances may also play a part in its production.

Pathologically the condition is a vaso-motor neurosis called into action by reflex irritation, and followed by inflammation in and around the sebaceous glands with permanent dilatation of superficial blood-vessels, and occasionally by overgrowth of connective tissue around them.

The diagnosis of rosacea can hardly ever present any difficulty. The conditions for which it might possibly be mistaken are lupus erythematosus, certain tertiary syphilides, and acne vulgaris. From lupus erythematosus it is distinguished by the absence of scaliness, by the border, which is not raised and

shows no signs of active spreading, by the absence of atrophic scarring in the centre, and by its fluctuations dependent on digestive disorder and other causes. From tertiary syphilides it is distinguished by its symmetry, by its slow course, by the absence of any tendency to ulceration, and of marks or history of previous lesions. The possibility of a mixture of diseases must, however, always be borne in mind. Rosacea is, as a rule, sharply differentiated from acne vulgaris by the age of the patient, the absence of comedones, and the redness of the affected surface.

The prognosis is generally favourable as regards mitigation of the condition, and in the majority of cases a complete cure can be effected.

CHAPTER VI.

AFFECTIONS OF THE SKIN DEPENDENT ON NERVE DISORDER (*continued*).

DERMATITIS HERPETIFORMIS—HERPES GESTATIONIS —IMPETIGO HERPETIFORMIS—CHEIROPOMPHOLYX —PEMPHIGUS—HERPES.

Dermatitis herpetiformis.—Affections of the skin, differing from each other more or less in certain particulars, but all characterised by pemphigoid eruptions causing intense itching and burning, have been described under various names by different authors. Thus dermatologists are acquainted with the eczema pruriginosum and herpes circinatus bullosus of Erasmus Wilson, the hydroa vacciniforme of Bazin, the hydroa herpetiforme of Tilbury Fox, the pemphigus pruriginosus of Hardy, and the "summer eruption" of Hutchinson. Though each of these, as described by the author who named it, has features of its own, they are—with the doubtful exception of the last-named—essentially only varieties of the extraordinarily polymorphous affection to which Duhring has given the name of "dermatitis herpetiformis." This may be briefly defined as a neurosis of the skin, of which the distinctive feature is the multiformity of the lesions by which it manifests itself (Fig. 1). A characteristic symptom is intense itching. This is sometimes relieved, but on the other hand occasionally aggravated, by the appearance of the eruption, and in most cases it is subject to paroxysmal exacerbations. It is frequently of such severity as to rob the patient of sleep and keep him in a state of constant nervous excitement. When the erythema is

Fig. 1.—Hand of a Person affected with Dermatitis Herpetiformis. (From a Replica of Baretta's model, No. 1333, in the Museum of the St. Louis Hospital, Paris.)

spread over an extensive area, great pain and tension in the skin are complained of.

Almost any part of the cutaneous surface may be invaded, the limbs (both flexor and extensor aspects), the scalp, the face, and the trunk being all equally liable. In the majority of cases the limbs, especially the wrists and fore-arms, are the first points of attack. The lesions, as they subside, leave pigmented areas of greater or less extent, the pigmentation varying from dirty yellow to an almost coppery brown; the discoloration is often very persistent. The skin remains thickened and rough, and pitted and scarred here and there from the healing of excoriations underneath the scabs.

In severe cases the disease is ushered in by fever and general constitutional disturbance, and there is often great cutaneous irritation before there is any visible lesion of the skin. This is so marked a feature in some cases that the patient is frequently able to foretell an impending relapse two or three days beforehand.

The actual onset—that is, the appearance of the skin eruption—is often sudden. The characteristic feature of the eruption is, as already said, its extreme multiformity, erythematous, papular, vesicular, pustular and urticarial elements being mingled together in every conceivable variety of size and shape, and in all stages of evolution; or one type may predominate at one time and another at another. The earliest, and perhaps the most characteristic, lesion is a vesicular eruption in which the vesicles are arranged in herpetiform groups on an erythematous base. In the earlier stages these vesicles soon dry up and form scabs, but at a later period they have a tendency to run together and form bullæ, often of considerable size. These bullæ do not, as a rule, burst spontaneously. Their contents, which are at first clear, gradually

become opaque, and as the contained liquid thickens the bulla slowly shrinks, and, if left to itself, finally shrivels up to a thick brown scab. In addition to the elementary lesions of various kinds, the skin in the affected parts shows excoriation and other results of scratching.

The disease exhibits the most marked tendency to recur, attack following attack at varying intervals, sometimes for many years.

Dermatitis herpetiformis may be said to combine in itself the characteristics of several different varieties of skin affection, the herpetic and pemphigoid types probably on the whole predominating. The lesions need not be described in detail. The essential features of the process are:—1. The multiformity of the eruption—a multiformity showing itself not only in the appearance of crops of lesions of different types in different phases of the disease, but in the co-existence of several different types at the same time. 2. Disorders of sensation of varying intensity, but always present in greater or less degree—itching, burning, and pain. These paræsthesiæ may precede or accompany the eruptions, and may exist in the intervals between the successive crops. 3. The protracted course and constant tendency to exacerbation and recurrence. 4. The absence in most cases of any grave impairment of the general health in spite of the physical suffering and mental anguish caused by the disease. In some cases, however, especially in the later stages, the attacks are accompanied by symptoms of blood-poisoning, and death has been known to occur. In a case referred to by Pringle the patient, who had suffered from the disease for seven years, died of peritonitis following perforation of the ileum, which was the seat of numerous ulcers, others of the same kind being scattered about the cæcum. These were regarded as internal manifestations

of the disease. Throughout the illness there had been indications of marked implication of the alimentary mucous membrane (dysphagia, vomiting, diarrhœa, and melæna).

Both sexes appear to be equally liable to dermatitis herpetiformis, and no age is exempt. Unna has described a variety of the affection which he considers peculiar to childhood, and which he therefore proposes to call "hydroa puerorum." * The following are, according to him, its distinguishing features:— 1. It begins in the first years of life. 2. Continual relapses take place during childhood. 3. The attacks reach their maximum of intensity in the hot season. 4. Multiformity of lesion is not so marked a feature as in ordinary dermatitis herpetiformis, the eruption almost exclusively consisting of papular erythema, vesicles, and bullæ. 5. Conversely to what is the rule in adults, itching is a much less prominent symptom than pain. 6. The acuteness of the attacks is in itself a characteristic feature. 7. The general health is affected even before the appearance of the eruption. 8. The attacks become progressively less severe as the period of puberty is approached. 9. The disease disappears or becomes extremely mild in adult age. 10. Boys are more liable to the disease than girls.

As to the etiology of dermatitis herpetiformis, all that can be said with certainty is that the nervous temperament is a predisposing cause. In the great majority of cases the outbreak of the disease is preceded by a definite nervous shock or long-continued depressing influences. As in all other diseases, some predisposition is necessary before the exciting cause can produce its effect; in the case of dermatitis herpetiformis the susceptibility of the patient is

* Congrès Intern. de Dermatol. et de Syph. tenu à Paris en 1889; *Comptes-Rendus*, Paris, 1890, p. 185.

probably conditioned simply by loss of nerve force. Of the sudden onset of the disease after extreme nervous shock Duhring relates a striking example.* A strong, healthy man, aged thirty-four, who had never had any disease of the skin before, narrowly escaped being buried alive in a quagmire. Three days later the eruption appeared in the form of small variously shaped vesicles, and he continued subject to the disease in a well-marked form for at least four years.

Dermatitis herpetiformis is liable to be mistaken for any of the diseases whose characteristic lesion predominates at any given period of its course. The diagnosis must rest on the following points:—(1) The multiformity of the lesions; and under this head must be counted the scars, pits, and pigmentary blotches left by previous attacks, as well as the vesicles, bullæ, etc., actually present. (2) The intensity of the itching, which, as already said, often vexes the patient when otherwise the disease appears to be quiescent. (3) The frequency of relapses; and (4) the general refractoriness of the affection to treatment of every kind. The practitioner must be guided by the complex of symptoms rather than by one or other feature which may happen to be predominant at a particular time.

Pathologically, the disease is probably a functional neurosis. Possibly in some of the severer cases peripheral neuritis may be present; but no definite evidence on this point is at present available.

Herpes gestationis is a skin affection characterised by multiformity of lesion and excessive itching, which occurs in association with pregnancy. Its clinical features are practically identical with those of dermatitis herpetiformis, the only point of distinction being, according to Brocq, that among the lesions

* *Amer. Journ. Med. Sci.*, January, 1885

observed pustules are less frequent than in the latter affection. The symptoms come on during the last six months of gestation, sometimes a few days after delivery. The eruption, which is multiform in character, appears usually first on the limbs, especially the hands and arms; sometimes the umbilicus is the point first attacked. The subjective phenomena (itching, burning, etc.) are constant and very pronounced. Sometimes the eruption is accompanied by slight febrile disorder; but on the whole the affection has little effect on the health beyond causing a certain degree of fatigue. When the period of parturition is over the disease, as a rule, disappears spontaneously; but it has a marked tendency to recur with each successive pregnancy, increasing each time in severity, and to merge into ordinary dermatitis herpetiformis. A curious fact pointed out by Brocq* is that true dermatitis herpetiformis seems to disappear in women suffering from it if they become pregnant.

Impetigo herpetiformis.—Under this name Kaposi† describes a disease which, while presenting certain affinities with dermatitis herpetiformis, exhibits peculiar characteristics sufficiently well marked to entitle it to be classed as an independent disease. It begins by the development of small pustules with opaque contents, which gradually assume a greenish hue. These pustules are arranged in groups on an inflamed base, and lie very close together; they appear first in the groin, on the umbilicus, on the breast, and in the armpit, other parts being attacked at a later stage. They dry up in one or two days, leaving a dirty brown crust. New pustules come out, forming a double and even a triple circle around the first as a centre; these, as they dry, increase the

* "Traitement des Maladies de la Peau," Paris, 1890, p. 135.

† "Maladies de la Peau," French translation by Besnier and Doyon, 2nd edition, vol. i. p. 799. Paris, 1891.

size of the central scab. In this way, starting from a few isolated points, the disease may, by the coalescence of adjacent foci, gradually spread over extensive areas. When the scabs separate, the skin underneath is found to be red and smooth, sometimes moist, as in eczema, but never ulcerated. In the course of three or four months nearly the whole cutaneous surface may be invaded.

The skin is burning hot, tense, and scabbed all over, the cuirass of crusts being cracked and excoriated here and there. The mucous membranes of the tongue, palate, velum, and the back of the pharynx in some cases present circumscribed greyish patches. In one case referred to by Kaposi groups of pustules were found in the œsophageal folds; in many places, especially near the cardiac orifice, these had ulcerated.* The eruption on the skin is accompanied by more or less continuous fever, exacerbations of which, with rigors and general constitutional disturbance, usher in each fresh crop of pustules. The disease lasts a few weeks, or at most some months, and is almost certainly fatal. The cause of death is by no means clear, but in some at least of the cases it was due to marasmus. Impetigo herpetiformis is very rare, and has so far hardly been observed anywhere else than in Vienna. Nearly all the patients have been pregnant women, and in one or two there have been uterine complications. These facts would seem to show that the cause of the affection is in some way connected with uterine disease. It would thus appear to be a reflex neurosis analogous to herpes gestationis, hysterical pemphigus, etc. Kaposi himself appears to be not altogether disinclined to look upon it as an infectious disease.†

It must be admitted that impetigo herpetiformis,

* Op. cit., p. 801.
† Op. cit., p. 803.

as described by Kaposi, is a disease entirely distinct from either dermatitis herpetiformis or herpes gestationis; and Duhring himself, who formerly maintained that they were identical, some time ago acknowledged that Kaposi's description of the disease had led him to change his view on that point.* Besnier† thinks that impetigo herpetiformis is not so much a definite pathological entity as a group of closely allied affections. The feature common to these is the formation of vesicles in groups, which quickly become pustules and spread at the circumference while healing in the centre. In this way neighbouring lesions unite and thus cover large areas. In their evolution the lesions assume at different stages an eczematous, ulcerative, vegetative, or papillomatous aspect. He thinks it probable that visceral changes are present in fatal cases. In short, Besnier looks upon impetigo herpetiformis as an expression covering multiple affections of septicæmic type, or reflex lesions leading to trophic changes.

Cheiropompholyx,‡ or dysidrosis, is characterised by an eruption consisting of vesicles symmetrically distributed on the extremities. The feet sometimes escape, but the hands are always attacked. The affection begins with subjective sensations of burning and itching, quickly followed by the appearance of numerous tiny vesicles deeply embedded in the skin, and showing through the epidermis like boiled sago grains. Their appearance is accompanied by increase of the itching. As they become more prominent on the surface they run together and form large irregular

* See his letter to M. Brocq which was read at the International Congress of Dermatology in Paris in 1889; *Comptes-Rendus*, Paris, 1890, p. 183.

† French translation of Kaposi, Paris, 1891, vol. i. p. 803.

‡ As the disease usually affects the feet as well as the hands, "acropompholyx" would be a more accurate designation than "cheiropompholyx."

bullæ containing clear fluid. These show little tendency to burst, but become more and more distended for a time; and then, as the contents become opaque and thicken, they begin to shrink, and finally form dense dark brown crusts. When these are thrown off, the surface of the skin underneath is found smooth, red, dry, and exquisitely tender. The itching sometimes ceases when the bullæ are fully developed, as if some irritant substance had been thereby eliminated from the skin. When the bullæ are pricked, the liquid which issues is clear, and neutral or alkaline in reaction. The first tiny vesicles may usually be seen grouped around the orifices of the sweat ducts. The eruption comes out along the sides and palmar aspects of the fingers, and in the interdigital spaces. In severe cases the whole surface of the hands may be involved. Sometimes an eczematoid eruption spreads up the arms from the hands, or may develop at distant parts, allying the disease with some form of eczema with which many authorities consider it identical. Its pathological anatomy on the whole rather supports this view. The duration of the disease is about a fortnight, but recurrence is almost certain, and may occur at such short intervals as to make the disease all but continuous. Repeated attacks of the same parts leave the skin discoloured, harsh, thick, and dry, and some time elapses before this inconvenient covering, which deadens sensation and hinders the movements of the fingers, is shed.

The disease was named "dysidrosis" by Tilbury Fox on the supposition that the process was primarily set up by retention of the sweat secretion. Crocker, on the other hand, thinks that excessive sweating is a predisposing condition. There can be little doubt that the disease is, in the first instance, a vaso-motor neurosis, and it is in harmony with the notion of its

nervous origin that it is much more common in women than in men, and that its especial victims are young women of neurotic temperament or who have been exposed to worry or excitement. So strongly marked, indeed, is the neurotic character of the affection that in many cases the slightest unpleasant emotion or mental agitation is sufficient to bring on an attack. Among the immediate causes of the disease, next to nervous shock, is temperature. The affection is more common in spring and summer than in the colder seasons, and hot weather has a marked effect in determining an attack or aggravating an already existing one. Artificial heat acts exactly in the same way, and exposure of the hands to the fire, as in cooking, often induces an attack in those subject to the complaint.

Winkelried Williams * has shown that the anatomical life-history of the cheiropompholyx vesicle is as follows :—(1) A mild inflammatory action in the papillary layer of the corium results in an exudation of serum, which finds its way between the rete cells and leads to their compression, degeneration, and destruction. (2) Vesicles are thus formed which receive fresh fluid, and thus increase in size. (3) The vesicular contents dry up, fresh epithelium forms below, and the superficial together with the dried contents of the vesicles is thrown off. The anatomical characters of cheiropompholyx thus closely resemble those of vesicular eczema.

To sum up, the distinctive features of cheiropompholyx are the limitation of the eruption to the extremities, and particularly to the hands ; the tendency of the vesicles to run together and form bullæ which seldom rupture spontaneously ; the tendency to recovery, followed by repeated recurrence

* *Brit. Journ. of Dermatology*, vol. iii., 1891, p. 303, *et seq.*

and the constant association of the disease with the summer season. The coexistence of all these points suffices to identify the disease. There can seldom be any difficulty in diagnosis. The absence of "weeping" differentiates the disease from eczema; the formation of bullæ by coalescence of vesicles from pemphigus; and the size, situation, and duration of the vesicles from sudamina.

The prognosis is always good as far as recovery from any given attack is concerned, but the great probability of recurrence must always be borne in mind.

Pemphigus may be defined as a condition characterised by the eruption of bullæ on previously healthy skin. Fresh crops of bullæ come out, not only on the skin, but sometimes on one or other of the mucous membranes, either continuously or at varying intervals of time. Many varieties of pemphigus have been enumerated, but they can all be classified under one of the two following heads:—1. A type in which the bullæ follow throughout a definite line of evolution, and finally disappear without causing any loss of substance in the epidermis. To this group, the characteristic feature of which is the formation of bullæ, is applied the name of "pemphigus vulgaris." 2. A type in which the epidermis tends to become detached in large sheets, leaving the deeper layer exposed over an area which afterwards enlarges circumferentially. To this process, in which the essential phenomenon is exfoliation, the term "pemphigus foliaceus" is applied.

Pemphigus vulgaris.—The onset of pemphigus vulgaris is usually marked, especially in children and in elderly persons, by greater or less febrile disorder, and the appearance of the eruption is accompanied by itching and burning. The bullæ quickly spring up, either on small erythematous patches or on unaltered skin; they are fully developed

in a few hours, and, as a rule, they stand out on the skin as hemispherical blebs, without any inflammatory areola around their base. They are scattered about irregularly, or arranged more or less symmetrically on the limbs, trunk, or lower part of the face. Sometimes they are set so close together as almost to deserve to be called "confluent," and in rare cases they actually do run together. Occasionally they are grouped around bullæ of older date so as to form circles, which, as they in turn gradually disappear, leave irregular wavy lines. The contents of the bullæ are at first clear and transparent, but they soon become opaque; the bullæ then dry up, forming brownish-yellow scabs. If the surface of skin covered by these scabs is extensive, they give rise to a disagreeable feeling of tension, and excoriation may be caused by their premature separation. When the scabs fall off naturally, the surface underneath is seen to be covered with newly-formed epidermis, which is at first purple in colour, but gradually turns brown and remains pigmented for some weeks. In some instances the ulcers under the scabs become covered with fibrinous exudation and leave more or less scarring.

Fig. 2. – "Essential Shrinking" of Conjunctiva connected with Pemphigus of Skin and Mucous Membrane of Mouth.

Pemphigus also sometimes attacks mucous membranes. I have seen a case in which the mouth and the conjunctiva were affected, the process being accompanied by "essential shrinking" of the latter* (Fig. 2).

The life-history of each bulla extends only over a

* See a report of the case by the author and Leslie Roberts (*British Journal of Dermatology*, April, 1889), where a full bibliography of conjunctival pemphigus is given.

few days; but as successive crops of them come out, more frequent and abundant in proportion to the severity of the attack, the disease may last for several months. In certain cases hæmorrhage takes place into the interior of the bullæ, the contents of which are then pink, red, or blackish, according to the amount of blood effused. In other cases the bullæ may end in sloughing and more or less extensive gangrene of the surrounding skin. These, however, are not varieties of the disease, but pathological accidents. Sometimes the general health is little, if at all, affected; but in persons of feeble constitution the discomfort of the lesions and the consequent insomnia cause depression, loss of strength, exhaustion, and even death. When the disease is on the decline the bullæ no longer come out in crops, but singly, here and there; the fever ceases, sleep and appetite return, and the health is rapidly restored. There may be no recurrence after a first attack, but it more often happens that after some months, or even a year, the patient is again attacked, perhaps more than once. The disease may then definitively cease from troubling; or, on the other hand, it may get so firm a hold on the patient that it cannot be shaken off, attacks following each other at such short intervals as to make the affection practically continuous. In such cases the whole body may be invaded by the lesions, to the grievous detriment to the patient's health, and sooner or later to the destruction of his life; or the process, though persistent, may be mild, the bullæ, though never altogether absent, being few and far between. These "sporadic" (if the term may be allowed) bullæ are apt to select parts where the circulation is sluggish (extremities, nose, etc.) for their appearance.

Though, as a rule, essentially chronic in its course, pemphigus is occasionally so acute in its manifestations

as to warrant the term "malignant" which has been applied to such cases. The bullæ form in enormous numbers, crop following crop so closely that there is no remission of the process, which is accompanied by high fever and rapid wasting, and ends in death in two or three weeks or even a few days. This form of the disease is usually seen in young children, and must not be confounded with syphilitic pemphigus.

The so-called *pemphigus neonatorum* is an affection met with in new-born infants, characterised by the eruption of bullæ on the thighs, buttocks, face and other parts, accompanied by greater or less constitutional disturbance. The children are free from syphilitic taint, and are often well nourished, but have been exposed to septic infection from insanitary surroundings. In some instances the disease occurs in the form of a limited epidemic, and a particular midwife has occasionally appeared to be the means of conveying the disease. There is no conclusive evidence, however, that pemphigus of any variety is really contagious. The affection is not, as a rule, of any gravity, but occasionally it assumes a malignant type, the contents of the bullæ being dark and fetid, and gangrenous ulceration taking place, with constitutional symptoms of great severity, causing death in ten or twelve days (Tilbury Fox).

Pemphigus foliaceus.—In *pemphigus foliaceus* the bullæ are not rounded and tense like those of pemphigus vulgaris, but flattened and flaccid. They break easily, and the affected surface has a blistered appearance. The bullæ form yellowish crusts, and as the disease spreads, scales of considerable size are formed. These, as they become detached, leave red excoriated areas on which new layers of epidermis are formed, but only to be quickly shed again or brushed away mechanically. After a period of months or years the whole cutaneous surface may

be invaded, the skin readily ulcerates wherever it is subjected to any pressure, the face becomes disfigured by cicatricial contraction, causing ectropion, etc. The patient loses flesh, and as the disease advances the febrile symptoms and constitutional disorder become intensified; he cannot move or lie down without pain and his condition is one of great misery. Pemphigus foliaceus generally ends in death. The affection may begin and run its whole course as an independent disease, or it may follow long-standing pemphigus vulgaris, when the eruption has become continuous and widely distributed, and cachexia has been induced.

Both in pemphigus vulgaris and pemphigus foliaceus the mucous membrane of the mouth, pharynx, and larynx may become the seat of eruption. If bullæ form on the epiglottis there may be danger of suffocation. If the bullæ on the mucous membrane follow the same course as they do in pemphigus foliaceus of the skin, swallowing becomes impossible, the voice is lost, and the respiration may be embarrassed. In such circumstances the patient is in a condition of the gravest danger. The lesions of pemphigus may extend far into the lower air-passages, and in the last stage of pemphigus foliaceus the trachea and bronchi are often invaded.

Pemphigus vegetans.—A variety of pemphigus has been described by Neumann* which presents features so peculiar as almost to entitle it to rank as a distinct disease. Its only relation with ordinary pemphigus is the fact that the eruption is at first bullous in character. The initial lesions are bullæ of the size of lentils which gradually distend the epidermis with the colourless exudation which they contain. Excoriation takes place, and in four or

* Congrès Intern. de Dermatol. et de Syph., tenu à Paris en 1889; *Comptes-Rendus*, Paris, 1890, p. 81.

five days the centre of the denuded surface is occupied by a pale white protuberance which grows rapidly in height and width, so that in a short time warty or granulation-like excrescences are formed. These are at first bounded by a circle of excoriation, later by bullæ, which form at the circumference. The surface of the patches is uneven, slightly raised, flesh-coloured, and discharges a thin, foul-smelling secretion. The discharge, as it dries, forms a thin crust, which can be easily stripped off, when an excrescence, partly covered by a thin stratum of epidermis, is seen. The first points attacked are the labia majora and minora; next come the mouth and lips; then the skin, axillæ, hands, feet, inner part of thighs, face (where the eruption joins that of the lips and mouth). The mucous membrane becomes dry and fissured, and swallowing is so painful that the patient does not care to attempt it. On the skin the bullæ, instead of drying up into scabs, break down and form excoriations, upon which, in parts where the integument is folded on itself (armpits, junction of thighs with perinæum), papillary excrescences sprout up. Fresh crops of bullæ continue to come out, the epidermis strips off in large sheets, leaving the papillary layer exposed, as in a burn of the second degree. The diseased surface is dirty, wet, and warty; the secretion decomposes rapidly and is horribly offensive. Finally, superficial gangrene takes place, and the patient dies exhausted by his sufferings and by want of food, or of some intercurrent disease (nephritis, œdema of the lungs, etc.) a few months after the first appearance of the eruption. The disease is extremely rare. Neumann himself in 1889 had only seen fourteen cases. Crocker has met with a typical case which he considers to be the only one observed in England,* though he thinks some cases

* Trans. R Med. Chir. Soc., lxxii. (with bibliography up to date).

of "a rare pustulating disease of the skin and mucous membranes," allied to foot-and-mouth disease, reported by Hutchinson may have been a mild variety of pemphigus vegetans.

With regard to the etiology of pemphigus vulgaris nothing is known with certainty. Newborn babes and young children are more liable to it than adults. It is not clear that sex has any influence, statistics collected by different observers giving contradictory results. It is occasionally hereditary. Kaposi cites the case of a patient whose mother, sister, and maternal uncle had also been sufferers; several of the man's own children were also subjects of the disease. I have myself treated three members of the same family for pemphigus. The direct causation of the disease is doubtless some instability or over-excitability of the nervous system. Changes in the peripheral nerve-ends under the bullæ have been found in a few cases of pemphigus by Déjerine and others, and Weir-Mitchell has shown that bullous eruptions sometimes follow injuries of the nerves, especially such as cause neuritis. In certain forms of nerve degeneration or irritation bullæ are apt to be induced along the course of the affected nervous trunks by heat, cold, or slight injury. The pemphigoid blebs which are a frequent accompaniment of leprosy are probably the result of direct irritation of the vaso-motor nerves by the leprotic infiltration. Bullous eruptions are also not uncommonly associated with sclerosis of the posterior columns of the cord. It is probable that pemphigus is, as Schwimmer believes, a tropho-neurosis, but in the present state of knowledge no conclusive proof of this theory is obtainable. Some confirmation of the view just expressed as to the nervous origin of pemphigus is afforded by the fact that it is not infrequent in neurotic and hysterical subjects. According to

Kaposi, in women the disease is occasionally associated with gestation, the eruption showing itself in the course of every pregnancy and disappearing after delivery. In such cases, however, it is probable that the affection is not true pemphigus, but the same as that already described under the name of "herpes gestationis," and therefore of the nature of dermatitis herpetiformis.

As regards the pathology of pemphigus, I have already expressed my belief that the process is of angio-neurotic nature. The characteristic bulla is the result of inflammatory exudation from the vessels of the papillary layer. Crocker states that in the case of a very large bulla which he examined the fluid poured out had stretched the lower rete cells until they were separated from the corium; and as the process continued the lower layers were destroyed and the upper compressed until, at the centre, the roof was formed by the horny layer and about the upper two-thirds of the rete, with here and there a fragment of a sweat duct or hair follicle depending. At the border the lower stretched cells of the rete were still present. The fibres of the corium below the bulla were compressed, and there was free cell infiltration of the upper layers.

The liquid contained in pemphigus bullæ has most of the characters of blood serum. Even when it is clear, leucocytes may be found in it; and when it becomes opaque, pus-corpuscles and red blood-corpuscles abound in it. It is, as a rule, weakly alkaline in reaction. Micro-organisms have been found in it and in the urine of the patients by Paul Gibier, and by Spillmann in the contents of the bullæ, in the urine, and in the blood. Demme found in the bullæ and in the blood diplococci, of which he succeeded in making pure cultures. Crocker found a few micrococci in recent bullæ, and under cultivation in

peptonised gelatine minute bacilli developed. More recently Almquist* has found a coccus slightly resembling staphylococcus in the bullæ in six cases of pemphigus neonatorum. Inoculation always produced typical pemphigus bullæ after a short period of incubation. It is obvious, however, that, in view of the numerous micro-organisms of the most diverse kinds which are found on the epidermis under normal conditions, all observations on the bacteriology of skin lesions must be received with more caution than those relating to any other part of the body. The urine of patients suffering from pemphigus shows a diminution in the normal amount of urea. The blood presents no abnormality except when cachexia is established; then the ordinary phenomena of anæmia are present. Among the complications of pemphigus are Bright's disease, pneumonia, tuberculosis, and ulceration of the intestinal follicles.

The diagnosis of pemphigus vulgaris seldom presents much difficulty. The presence of the characteristic bullæ and of scabs and pigmented spots representing bullæ of earlier formation, and the absence of pustules, erythematous patches, and other lesions, taken together with the history of successive crops of exactly similar eruptions, are points which will in most cases suffice to identify the disease. Pemphigus may sometimes be confounded with bullous forms of urticaria and erythema. In both these conditions, however, there are other lesions besides the bullæ; moreover, except in pemphigus, the bulla is more an adventitious than a primary lesion—implanted on a wheal (as in urticaria) or on a raised red plateau in a setting of vesicles (as in erythema multiforme), not rising out of healthy skin, which

* *Arch. f. Derm. u. Syph.*, No. 2, 1892.

is the pathognomonic feature of pemphigus. From dermatitis herpetiformis, again, pemphigus is distinguished by the uniformity of the lesion. Pemphigus foliaceus may be mistaken for eczema rubrum and pityriasis rubra, and the diagnosis can sometimes be made only by taking into account the history of the case and by carefully watching its course. Thus in eczema the scales are not so large as in pemphigus foliaceus, nor is the disease often universal. In pityriasis rubra there are no bullæ, and the surface is dry. Moreover, the scales are smaller and thinner than in pemphigus foliaceus. In all forms of pemphigus, and especially in pemphigus vegetans, one of the first things to be done is to exclude syphilis. Neumann gives the following three points of distinction :—1. In pemphigus vegetans the excrescences are always surrounded by a zone of bullæ, while condylomata have an infiltrated border. 2. In pemphigus vegetans the surface is excoriated and warty ; in condylomata it is even and smooth. 3. The sequence of events and concomitant circumstances in the two cases, condylomata being almost invariably the consequence of an acute process, and being accompanied and followed by other signs of syphilis ; moreover, if left to themselves they finally tend to involution. In pemphigus foliaceus, on the other hand, the lesions continue to multiply, and the disease goes steadily from bad to worse.

In pemphigus vulgaris the prognosis is, as a rule, favourable as to life, though recurrence is only too likely, and it is impossible to say how often this may take place. In acute cases there is nearly always a greater or less amount of danger, especially in young children or old people. The longer the disease lasts the less hopeful is the prospect. One element of danger in very chronic cases is that the process may

pass into pemphigus foliaceus, which is always fatal, though life may be dragged on for years. As to pemphigus vegetans, Neumann says that in no disease is the prognosis so gloomy. "A small excoriation in the axilla, one or two bullæ on the mucous membrane of the lips are often sufficient grounds for prognosticating death, irrevocably impending, in a few months."* Crocker, however, thinks that early treatment before the skin is much involved offers some chance of recovery.

Herpes may be taken as the type of a skin lesion of nervous origin, inasmuch as its connection with certain abnormal conditions of the nerves supplying the affected area can be clearly established. The term "herpes," in strictness, denotes merely a particular lesion which may be an incidental phenomenon in a variety of diseases, or may itself be the expression of a definite morbid state, or, as some (Erb, Landouzy, Brocq, Wasiliewski) believe, the exanthem of a specific fever.

The lesion itself is a cluster of transparent vesicles varying in size from a pin's head to a pea, and in number from two or three to twenty or more, seated on an erythematous patch, and surrounded by a narrow red zone. The eruption is almost always preceded by a feeling of heat and tension, sometimes itching, in the part about to be attacked. The life-history of the individual lesion comprises four stages: (1) a slightly red spot appears on the skin; (2) soon serous effusion takes place under the epidermis, and vesicles are formed; (3) the vesicles become opaque—occasionally purulent—shrivel up, and form yellowish-brown crusts, which, (4) after some days, become detached, usually leaving no scar, but a brownish stain which slowly fades and disappears. These

* Neumann, loc. cit., p. 82.

four phases in the evolution of the lesion are named by Brocq *congestive*, *vesicating*, *desiccating*, and *macular*. The whole process occupies from a week to a fortnight. On mucous membrane the lesion runs a somewhat different course. Owing to the macerating action of the secretions the vesicle is quickly reduced to a whitish pulp, which, when the eruption is extensive, gives the parts the appearance of being covered with false membrane. When the sodden epithelium becomes detached, roundish excoriations are seen underneath. These may be scattered irregularly about, or, intersecting each other, may form largish ulcers with wavy borders. Healing, as a rule, takes place without scarring.

Two distinct types of herpes may be recognised: First, one which I propose to call *irritative* or *symptomatic* herpes; and secondly, a definite morbid process, of which a herpetic eruption following certain definite lines of distribution is the expression—*herpes zoster*, or *zona*.

Irritative herpes chiefly affects the face and the genital organs—hence the *herpes facialis*, or *labialis*, and *progenitalis* (or, as I prefer, with Besnier, to call it, *genitalis*) of authors. The process in both these situations is essentially the same; the only difference between them is that the lesions, and also to some extent the symptoms, are modified by the anatomical relations and the functions of the parts affected. In the face the eruption most frequently comes out on the lip, especially the lower, and about the mouth; but any part of the face below the forehead may be invaded. Nor are the conjunctivæ and the mucous membrane of the mouth and throat exempt from attack. The lesions pass through the four stages of evolution which have already been described. The attack usually occurs in the course of some febrile disorder—catarrh of the respiratory passages,

pneumonia, typhoid fever, cerebro-spinal meningitis, malaria—and is generally ushered in by a sensation of chill, or even actual shivering. Herpes facialis used to be considered a sign of "crisis" in acute febrile diseases, and in the case of pneumonia in particular it was looked upon as of good augury for the favourable issue of the illness. It is now, however, regarded as a simple incident in the general morbid process without any special significance. It is, in short, merely *symptomatic* of feverishness with shivering. In some persons herpes is produced by local irritation; hence the frequency with which the upper lip is the seat of an eruption after an attack of nasal catarrh. In many persons herpes of the lip shows a marked tendency to recurrence.

Herpes affects the genitals in both sexes, the favourite points of attack in men being the prepuce, especially its internal surface, the sulcus, the glans, and the meatus; and in women the labia and the cervix uteri. The symptoms are in proportion to the severity of the lesions. In men the eruption is usually discrete, and, with the exception of the burning and itching which it causes, but little inconvenience is felt by the patient. If neglected, however, and especially if irritated, as by frequent coitus or the application of caustics, the ulceration may spread, and the glands in the groin may become enlarged and painful. In women the eruption is apt to become confluent, and in some cases not only the vulva, but the perinæum, the inside of the thighs, and the mons veneris may be invaded. The labia majora and minora and the mucous lining of the vagina become immensely swollen, and covered with macerated epithelium, which, as it separates, leaves extensive excoriations. There is an offensive muco-purulent discharge, and the pain on movement is so great that

the patient can hardly walk. The itching and burning are almost unbearable. Enlargement of the inguinal glands is a frequent complication.

Genital herpes is more common in men than in women. It is sometimes symptomatic, occurring in the course of some febrile disorder, such as pneumonia; but most commonly it appears to be the result of local irritation. In men the eruption is sometimes preceded by a gonorrhœa or a venereal sore, and it is apt to recur at frequent intervals after sexual intercourse (especially, according to Brocq, with different women), the passage of an instrument into the urethra, or other local irritation, or after any unusual fatigue, or even over-eating. The tendency to recurrence may last for years, but sometimes, as pointed out by Berkeley Hill, ceases under the alterative influence of some severe intercurrent illness. In women genital herpes is often brought on by the first attempts at sexual intercourse after marriage. It may also be the result of irritating discharges (leucorrhœa, gonorrhœa), or it may be related to the menstrual function.

On the face the affection may sometimes be mistaken for impetigo, but the acuteness of its course, its limited distribution, and the fact that it is not auto-inoculable, will serve to distinguish it. In genital herpes the diagnosis presents no difficulty if the case is seen before the characteristic vesicular eruption has become obscured by the violence of the inflammatory process. If ulceration is extensive, and especially if there be much suppuration, it may be impossible at first to distinguish genital herpes from soft sores. The latter, however, have a fouler base and excavate more deeply. Time will also help to clear up the question, the lesions of herpes disappearing, as a rule, in a few days, while soft sores are much slower in healing.

If positive proof is required, the test of auto-inoculation may be applied. From true chancre genital herpes can usually be distinguished without difficulty by the absence of induration, the multiplicity, irregular form, and small size of the ulcers, and by the intense burning and itching which they cause. It is not uncommon, however, according to Fournier, for a chancre to develop in the midst of a premonitory eruption of herpes.

Herpes zoster.—Herpes zoster, zona, or shingles, is an affection characterised by the eruption of clusters of vesicles seated on an erythematous base, not along the course of one or more peripheral nerves, as is still often taught, but in the region of distribution of one or more of the posterior spinal roots on the skin.* The intercostal variety of herpes zoster, being by far the most common, may conveniently be taken as the type in describing the disease. The appearance of the eruption is usually preceded by pain of neuralgic character and tenderness over the area of distribution of the nerve or nerves corresponding to the part of the surface about to be attacked. Sometimes there is also slight constitutional disturbance. The eruption always first appears at certain points from which, in most cases, it spreads. However extensive the area involved may be, these points are always those where the affection is at its maximum intensity (Head). As a rule, though by no means invariably, the neuralgic pain ceases on the appearance of the eruption, but the lesions cause a good deal of smarting and tension, and there may be severe pain owing to neuritis of

* Head, as the result of careful investigation ("On Disturbances of Sensation, with especial Reference to the Pain of Visceral Disease;" *Brain*, Parts 1 and 2, 1893), found that the areas occupied by the eruption of herpes zoster corresponded with those which become tender in visceral disturbances.

the implicated nerve. Children seldom suffer much pain. They complain, as a rule, more of itching; but in old people the pain is often most persistent and severe. The eruption shows itself in the form of erythematous patches, which can be made to disappear on pressure. They are more or less oval in outline, with their long axes parallel to the underlying nerve. They come out in crops, beginning, as a rule, nearest the corresponding nerve centre, and are scattered at irregular intervals along the track of the nerve with which they are in relation, especially at the points where its twigs pierce the fascia, or are distributed in the skin. The number of lesions varies from two or three to twenty or thirty. The full development of the eruption generally occupies about a week. In a short time the surface of the red patches becomes studded with papules, which are quickly transformed into vesicles. These are grouped in clusters to the number of about ten, or even twenty, on each patch. The vesicles are sometimes discrete, sometimes confluent, forming irregular bullæ; but the edge of the erythematous patch on which they rest is always visible as a red zone around the base of each cluster. Most of the lesions go through the regular phases of evolution already described; but some of them may abort, while others, instead of drying up in the ordinary way, may burst and give issue to a fluid which by-and-by forms yellowish or brownish crusts. Occasionally hæmorrhage takes place into the vesicles, and in such cases little ulcers are apt to form under them. These may give rise to permanent scars, which are sometimes whiter than the surrounding skin, sometimes pigmented, or they may be white in the centre and pigmented at the circumference (Brocq). It is well to make a point of warning patients as to the possibility of such marks

being left. In elderly or weakly subjects the lesions of herpes zoster sometimes assume a gangrenous character. Enlargement of the glands in the neighbourhood of the lesions is not uncommon.

The eruption is, in the great majority of cases, unilateral, the right side being far more often affected than the left. Sometimes it comes out on both sides, though at different levels. In certain rare cases, however, the lesions form a complete girdle round the body. Occasionally, while remaining unilateral, the lesions may overstep the middle line in front for one or two inches. James Mackenzie* has shown that the terminal branches from neighbouring intercostal nerves frequently cross each other.

All the different phases of herpes zoster may be seen in the same patient at a given time. The total duration of the disease till the separation of the scabs is from a fortnight to three weeks. One attack appears to confer immunity; but this rule is not absolute, Kaposi having seen no fewer than eleven recurrences in a patient under his care.†

Herpes zoster, though most frequent on the trunk, does not spare any part of the body, though it is extremely rare below the knee. A case in which herpes zoster limited to the foot followed a twist of the ankle has been recorded by Exley and Wardrop Griffith.‡ The process is everywhere the same, but on the head and limbs the lesions are distributed in more or less irregular lines, and have not the girdle character which is seen on the trunk. On the face the eruption follows the ramifications of the fifth nerve, especially the supra-orbital branch and the ophthalmic division. In the

* "Herpes Zoster and the Limb Plexuses of Nerves," *Journ. of Pathology and Bacteriology*, February, 1893, p. 332, *et seq.*

† "Maladies de la Peau:" French translation by Besnier and Doyon, tome i. p. 443.

‡ *Med. Chronicle*, March, 1893, p. 366.

former the inner third of the frontal region is the favourite seat of the disease. The lesions extend upwards in vertical lines, or spread out fanwise from the supra-orbital foramen and extend on to the scalp. In ophthalmic zoster, especially when the nasal branch is implicated, pain around the orbit and photophobia are prominent symptoms, and eye lesions (conjunctivitis, keratitis, iritis) are usually caused, which in rare cases lead to permanent mischief (posterior synechiæ, deformity of the pupil, and even amblyopia and atrophy of the papilla). This variety of herpes zoster is also frequently followed by indelible scars. Among other parts liable to be the seat of herpes zoster may be mentioned the nape of the neck and the occiput, and the skin supplied by the various branches of the superior cervical plexus. The eruption in this case spreads over the scalp along the branches of the occipital nerve. The arm, the thigh, the buttock and the genitals are also liable to be attacked; in fact, it may be said that wherever there are cutaneous nerves, there herpes zoster may break out. The musculo-spiral and sciatic nerves are especially prone to be affected. Zoster is, however, rare on the fore-arms and legs, and all but unknown on the hands and feet.

The affection is common at all ages, and there does not seem to be any marked difference in the relative proclivity of the two sexes. Nearly all authorities are agreed that chill may be an exciting cause of zoster, and the epidemics of the disease that have been reported are probably to be explained by the influence of the weather. The cold probably causes neuritis, which in turn gives rise to zoster. Arsenic, which according to Hutchinson sometimes causes herpes zoster, no doubt acts in the same way. The association of the disease with pleurisy, tuberculosis, cancerous and other tumours, and various

inflammatory lesions, may also be explained by the irritation to which the peripheral nerves, or their spinal roots or ganglia, are subjected when involved in such processes. In short, whatever causes neuritis —cold, injury, poison, or long-continued irritation— may also induce herpes zoster.

The lesion of the nerve may be in any part of its continuity, from its origin in the spinal cord to its peripheral end. Bärensprung * first demonstrated that in most cases of herpes zoster there is interstitial neuritis of the posterior ganglion and of the trunk of the nerve issuing therefrom, which is distributed to the affected area of the skin. In some cases the lesion is in the posterior spinal root between the cord and the ganglion, or in the posterior columns of the cord. Dubler † found zoster associated with peripheral neuritis without any trace of central disease; and cases have been reported (Curschmann, Eisenlohr) in which the disease was apparently caused by multiple neuromata in the course of the affected nerves without any central change. The lesion may be due to hæmorrhage as well as to inflammation. Herpes zoster sometimes occurs in association with locomotor ataxy. Wasiliewski ‡ rejects the theory of the nervous origin of herpes zoster on the ground that the clinical phenomena correspond closely with those of infectious fevers. His view is based on 274 cases gathered by collective investigation by the Medical Society of Thüringen. Wasiliewski thinks the distribution of the eruption is better explained by the blood stream than by nerve ramification. He points out that in some cases no nerve lesions can be

* *Charité Annalen*, Bd. ix. 2; Bd. x. 1; Bd. xi. 2. Danielssen seems to have been the first to observe (in 1857) that in a case of intercostal zoster the corresponding nerve was greatly congested.

† Virchow's *Archiv*, May, 1884.

‡ "Herpes Zoster und dessen Einreihung unter die Infectionskrankheiten," Jena, 1892.

found. Pfeiffer * has attempted to prove that the distribution of the lesions in herpes zoster is determined by the arterial supply; but, as pointed out by Mackenzie,† all the cases he gives show clearly the distribution of the eruption in regions supplied by definite spinal nerves.

The lesions of herpes zoster are formed by a process similar to that of eczema. The papillæ of the corium are infiltrated with serum, and active proliferation of connective-tissue elements takes place. The vessels of the papillary layer are dilated, and the Malpighian layer is penetrated by fusiform cells from the papillæ. According to Haight, of New York, the nervous filaments going to the affected parts are profoundly altered. They are swollen, and their neurilemma is full of small nucleated cells. The connective tissue around the nerves is infiltrated with leucocytes, and the nerve tubes themselves are abnormal in appearance.

Herpes zoster has to be distinguished from eczema, from erythema multiforme and dermatitis herpetiformis, and from irritative herpes (herpes facialis and genitalis). From eczema it can, as a rule, easily be discriminated by the fact that the vesicles dry up and do not keep up a continuous "weeping," and, moreover, are distributed in the area of a particular nervous supply. From erythema multiforme, dermatitis herpetiformis, and irritative herpes, zoster is clearly distinguished by its unilateral character and by the neuralgic pain which precedes and sometimes accompanies it. The history is also an important diagnostic point, zoster, as has been said, being a disease that attacks the same person only once. About the genitals it may not be easy to distinguish

* "Die Verbreitung des Herpes Zoster längs der Hautgebiete der Arterien," Jena, 1889.

† Loc. cit., p. 339.

zoster from irritative herpes. The presence of pain of a neuralgic character is, however, a certain sign that it is the former we have to deal with.

Both in irritative herpes and in zoster the prognosis is favourable. The disease runs a regular course, and tends to spontaneous recovery in from a fortnight to a month. If ulceration has been severe, and especially if gangrene has occurred, the lesion will take a considerable time to heal. Weakly people, especially if advanced in years, may be exhausted by the severity of the process and the accompanying subsequent pain, and (in a case of zoster of the ophthalmic division) death has occurred as the result of embolism of the ophthalmic vein (Brocq). Impairment of vision has also been known to follow this variety of zoster. Genital herpes may recur again and again if irritation is kept up, but patients suffering from zoster may be comforted with the assurance that it is practically certain they will not be troubled by the disease again.

CHAPTER VII.

AFFECTIONS OF THE SKIN DEPENDENT ON NERVE DISORDER (*continued*).

SCLERODERMIA—MORPHŒA—LICHEN—LEUCODERMIA—RAYNAUD'S DISEASE—DERMATITIS REPENS—DIABETIC GANGRENE—HYSTERICAL GANGRENE—GLOSSY SKIN—ATROPHY OF THE SKIN—CHARCOT'S BED-SORE—TROPHIC ULCERS—MORVAN'S DISEASE—SYRINGOMYELIA—ŒDEMA.

Sclerodermia is a disease characterised by hardening of the skin, either diffuse or circumscribed. The latter condition is usually known as morphœa, and will be described separately.*

Diffuse sclerodermia is very rare. It occurs in two forms—namely, as an infiltration and as an atrophy of the skin. In either case the affection often follows chill, and is sometimes ushered in by pains in the joints. A large part or the whole of the skin may be affected almost suddenly, or the disease may spread so slowly that it is some time before it is noticed. Some part of the upper half of the body is, as a rule, first attacked, and the limit of the disease is often indicated by a line of demarcation invisible to the eye, but faintly perceptible to the touch. The distribution is always symmetrical. The affected skin becomes

* As has been shown by Colcott Fox, in an interesting paper entitled "Note on the History of Sclerodermia in England" (*Brit. Journ. of Dermatology*, 1892, p. 101), what is now known as sclerodermia was described by Willan under the name of "ichthyosis cornea," by Addison under that of "true cheloid," by Wilson and others under that of "morphœa," and by Gibert under that of "*lèpre vitilige*." Much light has been thrown on the nature and pathology of the condition by Crocker, whose description of it has been chiefly followed here.

rigid, tense, and hard, like that of a frozen corpse, but without the coldness, its temperature being only a degree or two below the normal point (Crocker). It does not pit, nor can it be pinched up; the joints which it covers are immobilised, as if swathed in a stiffened bandage; the features are drawn, and the face becomes fixed into an expressionless mask; the chest walls are so tightly bound that breathing is seriously hindered. Sometimes the mucous membrane (mouth, pharynx, larynx, vagina) is attacked. At first sight the skin often does not seem to be much altered in appearance, but it is whiter than normal, and on looking closely at it the natural lines are seen to be obliterated. Erythematous patches, with telangiectases and mottling from scattered pigmentation of varying hue, are often present. Sensation is usually unaltered. The skin is dry, owing to diminution or suppression of the sweat and sebaceous secretion, and itching is sometimes troublesome. The general health is often not appreciably affected, but the patients are extremely sensitive to cold.

In the atrophic form the shrinking of the skin is always preceded by an œdematous stage, in which pitting is produced with some difficulty, as if the finger were pressed into a bladder of lard (E. Wilson). After this has lasted some time, the skin shrinks, and becomes ivory-white in colour. The distribution is symmetrical, as in the infiltrated form, but, as a rule, not so extensive, only the face and upper limbs being attacked in many cases. The skin is stretched tightly over the bones, pinching the features like those of a corpse, shrivelling the limbs, fixing the joints, and distorting the hands. The skin is so tightly drawn over the underlying parts that ulceration occurs on slight provocation.

In the infiltrated form the tendency is to gradual softening of the skin and recovery, with occasional

relapses from taking cold or less obvious causes. The atrophic form is more chronic, the condition often persisting for years, and sometimes ending in death from exhaustion; the stiffening of the skin may, however, disappear, but the shrunken tissues never recover their normal state, and some deformity may be left. The affection runs a more acute course in children than in adults.

Sclerodermia is not infrequently associated with acute rheumatism, and cardiac lesions are sometimes present. The disease is much more common in the female sex than in the male. No age is exempt. Of its causation nothing is known, but nervous depression and privation are said to be predisposing factors. The pathology of sclerodermia is not well understood. The anatomical conditions are due to obstruction of the circulation—arterial, venous, and lymphatic—by narrowing of the vessels consequent on the pressure of layers of cells which surround them like a sheath; in some cases further narrowing has been caused by concentric hypertrophy of the inner and middle coats of the vessels. How this accumulation of cells is caused is not known; it does not, however, appear to be the result of inflammation. The most probable cause of sclerodermia is defective innervation, the source of which must be situated high up, not improbably in the vaso-motor centre (Crocker).

From what has been said it will be gathered that the prognosis is much more favourable in the infiltrated than in the atrophic form.

Morphœa is anatomically and clinically closely allied to the condition just described. It occurs in the form either of patches or of bands, the former being more common in adults and the latter in children. The patches, which are generally level with the surrounding skin, though sometimes slightly depressed, are irregular in outline, and white or creamy in

colour; the edges are streaked with small dilated vessels, making a pink or violet border. They occur most frequently on the limbs, especially the lower, on the trunk, especially on the breasts, and on the face; they are not, as a rule, symmetrical, and in their distribution they sometimes follow the course of a particular nerve, as one of the branches of the fifth. The affected skin is not adherent to the underlying tissues; on pinching it up it feels like parchment or stiff leather (Crocker). The patches may remain stationary for a long time, or they may gradually extend, small atrophic spots appearing in their neighbourhood, and in time coalescing with them. The condition causes no symptoms, except itching and suppression of sweat secretion in the patches. It may last for years, fresh patches forming while some of the older ones disappear.

Bands usually cause grooving of the skin, owing to their being adherent to the underlying structures; sometimes they form ridges on the surface. They often have the appearance of a cicatrix.

Telangiectases, patches of pigmentation and atrophic striæ, are frequently intermingled with the lesions of both forms of morphœa.

The affection is more common in females than in males. It may occur at any age after infancy. The neurotic temperament and nervous depression from any cause are predisposing factors. The determining cause sometimes appears to be local irritation, as by garters, the pressure or friction of clothing, stays, blows, etc. The pathology is essentially the same as that of diffuse sclerodermia, namely, local obstruction to the blood supply, probably dependent on defective innervation. Cases of a mixed nature have been recorded, a primary diffuse sclerodermia being followed by the development of typical morphœa patches.

Morphœa is distinguished from leucodermia by the

absence of hardness of the integument in the latter. Morphœa, as a rule, tends to spontaneous recovery, the bands being more persistent than the patches. Local treatment generally does more harm than good. Brocq, however, has been successful with electrolysis. The improvement of the general tone of the circulation by massage is likely to assist the curative efforts of nature.

Lichen.—The term "lichen" is often loosely used to designate a number of diseases which have nothing in common but the fact that at some time or another the eruption has been papular in character. Thus lichen simplex and lichen agrius are really varieties or phases of eczema. Lichen strophulosus is a form of miliaria occurring in infants. Lichen tropicus, or prickly heat, is also a form of miliaria, and lichen urticatus has already been described as a form of urticaria affecting children. Accepting Hebra's restriction of the term "lichen" to conditions characterised by papules of typical form which persist as such throughout their whole course without becoming transformed into vesicles or pustules, I recognise only one form of lichen, namely, lichen ruber planus. The affection termed by Kaposi "lichen scrofulosorum" is described among scrofulous diseases.

Lichen ruber planus.—Lichen planus was first described by Erasmus Wilson, and is still accepted by Besnier and other leading dermatologists as the type of the group of affections designated by the name of "lichen." The condition described by Hebra under the name of lichen ruber is identical with Wilson's lichen planus, as from personal observation of the cases on which both these distinguished men based their descriptions I am able to testify. I therefore call the disease lichen ruber planus. Kaposi describes two forms of lichen ruber, namely, lichen ruber planus

and lichen ruber acuminatus. In my opinion, however, these names represent two distinct diseases, the latter being the same as Devergie's disease (pityriasis rubra pilaris), under which heading it is described. (See page 264.)

Lichen ruber planus (Plate VI. Fig. 1) is characterised by an eruption of small, irregularly-shaped papules, flat on the top and sometimes umbilicated. The papules are of a violet or lilac tint, and they have a little scale in the centre which at first sight, especially if looked at sideways, makes them look as though they were vesicating. At first the papules are irregularly scattered about; but they soon group themselves in lines or curves, the favourite situations being the palms and soles, the flexor surface of the wrists, the popliteal space, and the limbs. They do not, however, spare the trunk of the body, and they are seen on the mucous membrane of the lips and tongue. In the palms of the hands the papules feel like small corns. On the trunk they generally lie very close together, like the pieces of a mosaic; the older papules in the middle become flattened and of a sepia colour, whilst a new crop springs up around them, producing something of the effect of a dark stone set in pearls (Kaposi). In course of time large areas of skin may be invaded, and the integument then has a uniform dark red colour; it is distinctly thickened, and feels rough to the touch. At this stage the disease has more or less the appearance of psoriasis, but without the general scaliness characteristic of that affection. There are never any vesicles or pustules mingled with the papules. On the mucous membrane of the cheeks, tongue, palate, and lips the eruption shows itself in the form of silver-grey patches. The disease is essentially chronic in its course. The papules disappear after a few weeks, leaving in their place stains varying in hue from light brown to black. Later, these

stains lose their pigmentation and become white and atrophic, like scars. As one crop of papules disappears others come out in different places. The disease sometimes remains limited to particular parts of the body for a year or two; but it may, in course of time, invade nearly the whole surface of the skin. In some cases —especially on the legs and in persons with varicose veins—lichen ruber planus assumes a hypertrophic form, the patches being raised so as to form plateaux of considerable extent. The affection varies very greatly in severity in different persons. Sometimes the subjective symptoms are very severe; there is intense itching with restlessness, insomnia, and the deepest mental distress or violent excitement. In the later stages, when the lesions extend over a considerable portion of the body, the skin becomes very tender, and great pain is experienced when the parts are pressed. Occasionally old-standing lesions take on a warty character (*lichen verrucosus*).

Special reference must be made to an acute variety of lichen ruber planus, which is characterised by rapidity of onset, intense severity of lesions, the extremities being swollen and tense, and the blue or purple appearance being very marked. I have seen several examples of this, but have recently had a very severe one under my care. The patient was a man, aged thirty-one, otherwise healthy. Within a few weeks the whole body was covered with the eruption, the hands and feet being most severely affected, swollen, blue, œdematous, and subsequently desquamating in large masses as in scarlet-fever. On the body, though the eruption was most extensive, the characteristic appearance of the individual papules was not lost.

As regards the pathology of lichen, Crocker, whose careful examinations have been confirmed by recent investigators, has shown that the process is inflammatory, the starting-point being generally a sweat duct

in the upper part of the corium. The inflammation results in thickening of the rete, with enlargement of the papillæ, the papillary vessels being dilated, and down-growth of the interpapillary processes taking place. The hair follicles are seldom the seat of the disease. It is possible that the process is angio-neurotic, but so far this has not been proved.

The disease occurs in persons otherwise perfectly healthy. It is neither contagious nor hereditary. It affects men in considerably larger proportion than women. The majority of patients are between twenty and fifty years of age, and the disease is very rare at both extremes of life.*

Lichen ruber planus has to be distinguished from psoriasis punctata, papular eczema, and papular syphilitic lesions. From psoriasis it is differentiated by the fact that the papules remain unaltered instead of spreading out into scaly patches; from eczema by the fact that no vesicles are formed; and from syphilis by the dryness of the papules. In all doubtful cases the characteristic primary papules of lichen ruber planus must be looked for. Generalised lichen ruber planus is sometimes difficult to distinguish from generalised psoriasis. The points of distinction are that in the former there is less scaliness and more thickening, and characteristic papules are seen at the margin of the patches.

Lichen ruber planus shows no tendency to disappear spontaneously; on the contrary, if left to itself it is likely to spread over the body, and may end by causing death from exhaustion. The disease is not infrequently combined with the acuminated form described by Kaposi (pityriasis rubra pilaris). This is a much more formidable disease, and one tending to

* As regards lichen in early life, the reader is referred to a paper by Colcott Fox, "Notes on Lichen Planus in Infants;" *Brit. Journ. of Dermatology*, 1891, p. 201.

modify the constitution much more profoundly than lichen ruber planus; the complication is therefore a very serious one.

The etiology of lichen ruber planus is obscure. The process, as already said, is essentially inflammatory in character; but on the other hand it is, in my experience, not infrequently the result of a violent nervous shock or emotional disturbance. One of the worst cases I have seen was in a lady whose husband died suddenly in a railway carriage while travelling with her from the South. In addition to the shock of this occurrence she was subjected to much worry and anxiety by the necessity of going through, without assistance, the vexatious formalities insisted on by officials in such circumstances. She bore up well, however, till after the funeral, when she was suddenly seized with a severe attack of lichen ruber planus, in which the subjective symptoms were of such intensity as almost to upset her reason. In other cases the neurotic element is very strongly marked, and I think it not improbable that this may be a leading factor in the causation of the disease. I have therefore included lichen ruber planus in this group provisionally, but it must be understood that the evidence of its nervous origin is so far entirely clinical.

Anomalies of pigmentation may occur as the result of inhibition of the regulating influence of the nervous system, as by mental shock or long-continued depressing conditions, or by reflex disturbance. Thus, as is well known, the hair may grow rapidly grey under the stress of fear or sorrow; and Paget mentions the case of a lady subject to nervous headache who always found in the morning, after an attack, that some patches of her hair were white, as if powdered with starch. The change was effected in a night, and in a few days the hairs gradually regained

their dark-brownish colour.* The patches of yellow-brownish staining often seen on the forehead, cheeks, and nipples of pregnant women, and known as **chloasma uterinum,** illustrate the disorder in the distribution of pigment that may be caused by reflex irritation. Its reflex nature is shown by the fact that it is not always associated with pregnancy, but may occur in connection with any form of uterine irritation. The general bronzing of the skin observed in Addison's disease is due to irritation of the abdominal sympathetic, particularly the solar plexus. The pigmentary changes in the macular form of leprosy and in leucodermia are tropho-neurotic in their nature. The former will be described under the heading of Leprosy; but a brief account must be given of the latter, which, so far as we know at present, is an independent disease.

Leucodermia, or vitiligo, is somewhat rare in Great Britain, and in Europe generally; but it is common in the tropics, and especially in the dark races. Its characteristic feature is the formation in different parts of the body of white patches, surrounded by a pigmented border. The appearance is as if the pigment had receded from the affected area and heaped itself up at its circumference. The patches are at first small, and more or less rounded in shape. As they spread, however, their outline becomes irregular, but the border always remains convex. The pigmented zone surrounding them merges insensibly into the healthy skin around it. The white patches may be few or many in number, and they may be scattered about irregularly, giving the surface of the integument a map-like appearance, or distributed with some approach to symmetry, especially on the limbs. The neck is a common situation; but the face, the

* "Surgical Pathology," third edition, London, 1879, p. 31.

scalp, and the trunk, as well as the limbs, may be the seat of the affection. The disease is very slow in its course, and in some cases after a time it becomes stationary. In other cases, again, it spreads over the whole body, taking, however, many years to do so. The affected skin is smooth and supple, and shows no sign of scaliness; the physiological functions of the skin are intact, and sensation is unaltered. Sometimes slight itching may precede the formation of a patch. The hairs in the affected areas participate in the loss of pigment, and turn white. Both sexes are equally liable to the disease. Between ten and thirty is the time of life when it generally commences.

There can be little doubt that leucodermia is a disease of neurotic origin, and Leloir has in some cases found changes in the nerves supplying the whitened patches of skin. It also not infrequently follows violent mental emotion or prolonged depression from illness or anxiety. Extreme heat or cold appears to have some influence as an exciting cause.

Leucodermia can be distinguished from macular leprosy by the absence of anæsthesia in the white patches, and from sclerodermia by the absence of the parchment-like stiffness and thickening of the skin characteristic of that condition.

The prognosis of leucodermia is by no means favourable, so far as restoration of the pigment is concerned. The process, as already said, sometimes comes spontaneously to a standstill.

Raynaud's disease, or symmetrical gangrene of the extremities (including in that term the tip of the nose and the ears), is a disorder of the peripheral circulation, and has three well-marked stages: First, spasm of arterioles, with pallor and loss of sensibility in the affected parts (local syncope, "dead fingers"); secondly, stagnation of the venous circulation, with consequent cyanosis of the parts; thirdly, superficial

gangrene—the skin becoming black, the epidermis becoming covered with eschars, and being raised here and there into bullæ, which dry up or burst, and leave persistent ulcers. A line of demarcation is formed, and in several cases separation of the affected part takes place. The gangrenous process is at first accompanied by sharp pain, formication, and itching. In slighter cases, after the sloughing of the superficial tissues is complete, healing takes place, the fingers, however, remaining thinned, and covered with small white depressed cicatrices of considerable toughness. The process may be arrested in any of the three stages above described.

Raynaud's disease is almost invariably symmetrical, but the process may be mild on one side and severe on the other. In a case under my own care it was asymmetrical. The order of frequency with which different parts are attacked is as follows:—Fingers, toes, heels, nose, and ears. Any part of the body—limbs, trunk, or face—may, however, be attacked.

Males are rather more liable than females, probably owing to their being more exposed to cold. No age is exempt, but children are more often attacked than adults. Persons in whom the circulation is weak, and especially those who are subject to "deadness" of the fingers, or to chilblains, are especially prone to Raynaud's disease. The most favourable predisposing condition for its development is the combination of a sluggish circulation with an unstable nervous system. Malaria, gout, and diabetes are believed to have a certain predisposing influence. The most frequent exciting causes are cold and an attack of acute disease (scarlet fever, measles, diphtheria).

The process appears to consist in spasm of the arterioles, due to central or peripheral nervous

disorder. The other phenomena are those of ordinary gangrene.

The prognosis depends on the severity and extent of the process and the constitutional state of the patient. Death is rare; but, on the other hand, the disease is always likely to recur, and permanent changes in the parts or mutilation may occur.

Dermatitis repens.—Under this title Crocker has described a form of spreading dermatitis occasionally following injuries. It commences almost exclusively in the upper extremities, and is probably neuritic in character. The general aspect of the affected parts usually resembles that of eczema rubrum. The condition might sometimes be mistaken for eczema, but the oozing surface entirely denuded, and the sharply-defined undermined spreading edge, are quite different from anything seen in that affection. The disease, though primarily the result of peripheral neuritis, is probably kept up and aggravated by secondary parasitic irritation. This view is confirmed by the beneficial effect of the local application of anti-parasitic remedies.

Diabetic gangrene.—In diabetes localised inflammation, ending in gangrene, is not infrequently observed in the foot, especially in one or other of the toes. It is not always the distal end that is attacked. The lesion sometimes affects a circumscribed area on the sole, the ball of the toes, or the dorsum. The part becomes inflamed, bullæ are formed, and more or less extensive sloughing takes place. The process, as a rule, affects only one side. Kaposi* has described a case of what he calls "bullo-serpiginous diabetic gangrene," in which the left leg was the seat of an eruption of disseminated bullæ on an inflamed base, with subsequent formation of eschars. From the affected part, as from a centre, the process extended

* Op. cit., t. i. p. 489.

serpiginously; the lesions took several months to cicatrise; and death occurred only after the process had invaded the tibio-tarsal joint. Gangrene of the penis, toes, etc., has also been observed in association with diabetes.

Hysterical gangrene. — So-called "spontaneous" gangrene of the skin has occasionally been seen in young women, mostly in those presenting unmistakable signs of hysteria and anæmia. The patient suddenly feels a sensation of burning on some part of the skin, usually the chest or the arms. On examination a raised and somewhat red spot, varying in size from a shilling to a crown piece, is seen in the place where the sensation was localised. In a few hours the skin becomes bluish-black or greenish-brown in colour, and a leathery eschar is formed resembling that produced by the application of sulphuric acid. This separates in due course, and its place is taken by a hypertrophic cicatrix. The same process is repeated in other parts at intervals of a few days or weeks, and this may go on for months or even years, and then finally stops. This description is taken almost verbatim from Kaposi,* who expresses no suspicion of the genuineness of the phenomena. To me, however, the facts, as given by him, are strongly suggestive of imposture.

Glossy skin.—As the result of injury to the trunk of a nerve supplying a particular part of the integument, a peculiar change is often observed which is known as "glossy skin." The first account of this condition was given by Paget many years ago. After injury to the brachial plexus he noticed that the fingers assumed "a smooth, glossy, tapering appearance, almost void of wrinkles, and hairless, pink or ruddy, or blotched as if with permanent chilblains, and

* Op. cit., p. 489.

associated with this condition of the skin was distressing local pain." * A fuller account of the condition was given by Weir-Mitchell, Morehouse, and Keen† from their vast experience of nerve injuries during the American civil war. They compare the appearance of the affected skin to that of a highly polished scar. The skin easily becomes inflamed, excoriated, and fissured. Characteristic changes in the nails are also observed. They are curved both in the longitudinal and in the transverse direction, and the cutis beneath their free ends is sometimes thickened. The condition, in short, is one of atrophy with degeneration of the skin, rendering it more vulnerable to injurious influences of all kinds owing to impaired nutrition. This is dependent on neuritis of the trunks from which it derives its nervous supply, and the effect is the same whether the nerve lesion is the result of injury or disease. This "glossy skin" is observed in non-tuberculated leprosy, gout, rheumatism, etc., as well as after traumatism.

The condition tends to disappear as the nervous influence is restored either by subsidence of the neuritis or by the establishment of a collateral supply.

Localised atrophy of the skin may be the result of tropho-neurosis; it may take the form of linear streaks or *striæ*, or less commonly of maculæ. A good example of the former has been recorded by Ohmann-Dumesnil.‡ A little girl, who had been severely burnt on the wrist, some years afterwards presented atrophic rectilinear areas about three-quarters of an inch in width, and varying from three-quarters to two inches in length, on the front of the

* "Surgical Pathology," third edition, London, 1870, p. 32. Paget's cases were published in the *Medical Times and Gazette* of March 26th, 1864.

† "Gunshot and other Injuries of Nerves," Philadelphia, 1864.

‡ *Brit. Journ. of Dermatology*, 1890, p. 246.

arm and fore-arm, apparently following or lying directly over the brachial and radial nerves. The areas were five in number; they were distinctly depressed, and the colour was paler than that of the normal skin, but warmth made them redder than the healthy integument. On pinching up the affected skin it was felt to be thinner than in other parts. Striæ may also be the result of injury during growth, pregnancy, and other conditions in which the skin is subjected to stretching.

Charcot's bed-sore.—A form of localised gangrene of the skin has been described by Charcot under the name of "acute bed-sore." Its characteristic feature is the suddenness of its development. It is generally associated with abscess of the brain, and is situated on the side of the body opposite to that of the cerebral lesion.

Trophic ulcers.—Trophic ulcers are the result of direct injury to nerves, or in some cases of reflex irritation. They generally spread serpiginously, and are preceded and accompanied by pain of neuralgic character referred to the area of distribution of a particular nerve. The ulcers often form under vesicles or bullæ, and leave indelible, depressed or cheloid scars (Brocq). In some cases the process takes on a gangrenous character.

Perforating ulcer of the foot is a special form of trophic ulceration generally seen on the foot, but occasionally also on the hand. It is the result of pressure or injury in an extremity in which, owing to peripheral or central lesion, the proper nervous supply is interfered with. It occurs in locomotor ataxy and in syphilis, leprosy, etc., as well as in cases of injury to the nerve. The most common situation of the ulcer is at the points of greatest pressure, such as the under aspect of the metatarso-phalangeal joint of the big or little toe, or

the ball of the great toe. It is more a sinus than an ulcer, and is usually painless. The process is generally very chronic, and if the pressure from walking is continued, the thickened epidermis forms a kind of natural corn shield around the opening.

Leprosy.—The ulcers and other lesions of the skin in non-tuberculated leprosy, which are all dependent on inflammatory lesions of the nerves supplying the affected regions, will be described under the heading of Leprosy.

Morvan's disease.—This affection is characterised by paroxysmal attacks of neuralgic pain, followed by various disorders of sensation and by the development of bullæ, followed by ulcers and fissures on the palmar surface of the hands and fingers. Usually one or more whitlows form, and necrosis of the phalanges takes place. A peculiar deformity of the hand, exactly resembling the *main en griffe* of anæsthetic leprosy, is produced. The disease appears to be connected with lesions of the cord. It is comparatively common in certain parts of Brittany; and Zambaco, of Constantinople, has recently expressed the belief that it is an attenuated form of leprosy surviving in places where that disease was at one time extraordinarily rife. Leloir * seems to be inclined to agree with Zambaco; but, as he says, the theory, though seductive and suggestive, still awaits scientific demonstration.

Syringomyelia.—In syringomyelia the skin becomes the seat of various lesions, such as "glossiness," hyper-keratinisation, excessive secretion of sweat, and whitlows leading to necrosis of the phalanges, as in Morvan's disease. The latter, in fact, if it is not an attenuated leprosy, is probably a form of syringomyelia. There is nothing characteristic about

* *Semaine Médicale*, Feb. 22, 1893.

the skin lesions in syringomyelia, which are trophoneurotic in origin. The disease itself belongs to the domain of neurology.

Acute circumscribed œdema arising suddenly and rapidly subsiding, only to develop in another part, is a lesion of the skin which has been described by several dermatologists in recent years. The onset is usually preceded by slight general malaise, with some gastric disturbance. The process consists in infiltration of the skin and subcutaneous tissue with serous exudation. The œdematous swellings are isolated, well defined, red or reddish in colour, smooth and glistening on the surface. They vary in circumference at the base from a five-shilling piece to the palm of a man's hand (Brocq). They are not the seat of pain or itching, but they sometimes give rise to a slight feeling of tension. The affection is sometimes associated with purpura,* and colic and acute gastro-intestinal disturbances may be concomitants of the skin affection. More often, however, there are no general symptoms. As a rule they last only a few hours, or at most a day or two. The affection may, however, last a considerable time, as fresh swellings may continue to appear. Any part of the body may be attacked, but the favourite seats of the swellings would seem to be the face and the genitals. Circumscribed œdema may attack the mucous membranes, and if the swellings develop in the pharynx or larynx alarming symptoms may ensue.

The affection is sometimes hereditary. Milroy † has traced it through six generations of one family. Among ninety-seven individuals, twenty-two were the subjects of œdema; in all but two the disorder was congenital.

* Bowen: *Journ. of Cut. and Gen. Urin. Diseases*, November, 1892.

† *N. Y. Med. Journ.*, Nov. 5, 1892.

Acute circumscribed œdema can only be confounded with the "giant" form of urticaria, but the itching, which is a characteristic feature of the latter affection, is absent in circumscribed œdema. Moreover, the swellings have not the white centre which is a distinguishing mark of urticarial wheals.

The process is the result of vaso-motor disturbance, the vessels actually implicated being those passing from the subcutaneous layer to the corium. It has been suggested that the fundamental factor in the development of the affection is the circulation of products manufactured in the organism and circulating in the blood.* These products, under the operation of some influence, hereditary or acquired, may irritate the sympathetic in different parts of the body and throw the regulating apparatus of the peripheral circulation into confusion. Clinically, acute circumscribed œdema presents certain analogies with other vaso-motor disorders, such as urticaria and exophthalmic goitre. Osler has shown that it is related to peliosis rheumatica and erythema nodosum.

Hysterical œdema.—This is a form of œdema which, though noticed by Sydenham, has been fully described only in recent years by Charcot, and notably by Renaut.† It is met with in hysterical subjects, and is a hard swelling of a violet colour (*œdème bleu des hystériques*); it scarcely pits even under prolonged pressure. The local temperature is usually subnormal, and numbness and sometimes pain of greater or less severity are complained of. The swelling, which is, as a rule, associated with hysterical paralysis or contracture, is very persistent; but it is subject to extremely sudden variations under

* Joseph Collins: *Amer. Journ. Med. Sciences*, December, 1892.

† *Médecine Moderne*, February 20, 1890.

the influence of emotional disturbance or in connection with the menstrual function. If the œdema reaches a certain degree of intensity it may induce gangrene of the skin, followed by deep and wide-spreading ulceration, which may be mistaken for malignant disease.

CHAPTER VIII.

AFFECTIONS OF THE SKIN DEPENDENT ON NERVE DISORDER (*concluded*).

Treatment.

In the treatment of skin affections dependent on nerve disorder there are certain general principles applicable to all alike, besides special measures which are more particularly indicated in some of them. The latter will be described separately.

In all cases the first thing to be aimed at is to calm the nervous disturbance which is at the root of the mischief. Any underlying constitutional state or functional disorder which tends to aggravate the skin affection must next be attended to. Lastly, symptoms, subjective and objective, must be relieved. Treatment must therefore be general (including hygienic measures, as well as internal medication) and local.

For the soothing of the nervous irritability an essential element in treatment is physiological rest. Excitement of any kind, violent mental emotion or anxiety, overwork, and especially worry, should as far as possible be avoided; a skin affection that defies all treatment while the patient is harassed by business cares will often quickly disappear if he takes a holiday. Change of scene and healthy amusement are powerful factors in restoring the tone of the overstrained nervous system. Exercise, always well within the limits of endurance, promotes the restoration of the functional efficiency of the skin; and I have seen the greatest benefit follow a course of massage. If the cutaneous phenomena be accompanied by a high degree of nervous

excitability, sedative drugs will have to be used, but only with the greatest discretion both in the choice of the drug and in the quantity administered. Chloral and bromide of potassium are generally contra-indicated, on account of their tendency to cause skin eruptions. If a narcotic be imperatively called for, opium is at once the least objectionable and the most efficient; it may be given by the mouth, or in suppository. Paraldehyde may be administered when opium is unsuitable; it may be given in a single dose of half a drachm to a drachm, repeated, if need be, in half an hour. It has the special advantage in the kind of cases under consideration that it has no effect on the skin. Cannabis indica is sometimes a useful sedative, but requires care. On the whole, sedatives must be looked upon as necessary evils, and should never be given except in response to the clearest indication.

Nerve tonics, on the other hand, are generally most useful. Those on which I place the greatest reliance are quinine—combined with belladonna—arsenic, and valerian. Quinine and belladonna may be given in a pill composed of gr. $\frac{1}{2}$ of sulphate of quinine with gr. $\frac{1}{3}$ of extract of belladonna, or in a mixture containing ten drops of the tincture of belladonna to ʒj of the tincture of quinine. Valerian may be given in a mixture composed of ɱx of tincture of valerian with an equal quantity of tincture of asafœtida, ʒss of compound spirit of lavender, and water to ℥j, the dose to be taken every three hours; or in a pill containing valerianate of zinc gr. j, compound asafœtida pill grs. ij, to make one pill, one or two of which may be taken every four hours. Valerian may be combined with quinine in a pill composed of valerianate of zinc gr. j, sulphate of quinine gr. $\frac{1}{2}$, compound rhubarb pill gr. j, and extract of gentian gr. j. Arsenic is best given in the form

of Fowler's solution. Three (gradually increased to five or even eight) minims in a wineglass of water should be taken three times a day, after meals; or a pill composed of arseniate of sodium (gr. $\frac{1}{24}$ to $\frac{1}{12}$) and quinine (quin. sulph., gr. $\frac{1}{2}$). Arsenic may also be given in the form of the "Asiatic pill," much used on the Continent. The following is the formula:—Arsenious acid gr. $66\frac{2}{3}$, powdered black pepper ʒix, gum Arabic and water q.s. To be divided into 800 pills, each of which contains gr. $\frac{1}{12}$ of arsenious acid.

In all cases of skin disease with marked nervous symptoms any functional disorder of internal organs that may be a source of reflex irritation must be dealt with by appropriate measures. The bowels must be regulated, digestive disturbance—whether hepatic or gastro-intestinal—must be remedied, and, in women, menstrual irregularity or other uterine trouble must be corrected. The constitutional conditions most frequently associated with skin affections of neurotic origin are gout, rheumatism, and glycosuria; these must be treated on general medical principles. As regards diet, the guiding principle must be to forbid all food of a stimulating or constipating character, a sound practical rule being to avoid whatever causes flushing of the face lasting for some time after a meal. Total abstinence from alcohol should, as a rule, be enjoined. The clothing should be loose and not too heavy, and, generally speaking, the patient should—especially when in bed—keep himself as cool as possible, short of discomfort.

Local treatment resolves itself into protection of the affected parts from the air, the subduing of inflammation, the relief of itching, and the cure of secondary lesions caused by scratching and the inoculation of pyogenic material. The inflamed surface

may be protected by dusting thickly over with powders, such as oxide of zinc, 1 part to 3 parts of powdered rice starch, maize, or kaolin; or boric acid reduced to fine powder, 1 part to 3 parts of rice, starch, kaolin, or white fuller's earth; or ℥xvj of creasote in ℥j, of kaolin. A hot fomentation should be applied over the powder so as to vaporise the creasote and keep the part in an antiseptic atmosphere. Another useful powder is the following: Acidi salicylici 3 parts, powdered talc 87 parts, powdered starch 10 parts. Powders are best applied by dusting a muslin bag previously filled with them over the part. Unna's powder-bags may also be employed. They are made of old used linen or other material not too thick, the pieces being evenly cut and sewn together in the form of a bag, except at one border, which is left open so that the bag may be partly filled with rice or potato meal. When closed, the bag is sewn with quilt stitches through and through, in order to keep the powder evenly distributed; it is then placed on the affected skin and tied in position. Fatty substances must not be applied to the skin at the same time, as they stop up the interstices of the bag. For the arms and legs two sleeves, or the legs of a pair of fine drawers, stockings, etc., one placed within the other, with the space between filled with powder, should be used. For the genitals the bag can be fastened on with a suspensory bandage; a broad muslin bandage can be used for the body, and bags can be shaped into masks for the face.* Sedative astringent lotions are preferable when much heat and irritation are complained of. The most generally useful is calamine lotion, composed of prepared calamine ℥iv, oxide of zinc ℥ij, pure glycerine ℥jss, and rose-water ℥vj; carbolic acid

* "Selected Monographs on Dermatology," New Sydenham Society. London, 1893; p. 73.

may, if it seem desirable, be added to this lotion. Lead lotions are also very serviceable; ℿx to ℿxxx of the solution of the subacetate with glycerine ℿxv and water ʒj; or ʒij of the solution of the subacetate with ʒij of fresh milk may be applied by means of a piece of rag kept wet with the lotion. The following is an excellent lotion when there is much hyperæmia: Subnitrate of bismuth gr. x, oxide of zinc ʒss, glycerine ℿxv, hyd. perchlor. gr. ¼, rose-water ʒj. Cooling ointments such as "cold cream," and the unguentum plumbi subacetatis, are often of service in allaying heat and reducing local congestion. The following is the formula of an excellent cold cream: ℞. Ceræ, cetacei, āā 1·0, ol. amygdal., aq. rosarum, āā 10·0. M. Other useful formulæ are: ℞. Lanolin. anhyd. 10, adip. benzoat. 20, aq. rosæ 30 (Unna); ℞. Lanolin anhyd. 10, adip. benzoat. 20, aq. calcis 30; ℞. Lanolin. anhyd. 10, adip. benzoat. 20, liq. plumbi subacetatis 30. The following is recommended by Jamieson as a most useful soothing ointment: Zinci carbonatis ʒj, acidi salicylici grs. x, vaselini ʒj, cerati Galeni (cold cream) ad ʒj. M. Boracic acid ointment is an excellent application, especially in moist parts as between the thigh and scrotum. It should be prepared as follows: Paraffin (135° or 140°) 5 parts, vaseline 15 parts, and boric acid in fine powder 4 parts (Martindale). The substance which is perhaps more effectual than any other for the reduction of hyperæmia is ichthyol. This may be applied as an ointment (10 to 20 per cent.), or a paste prepared as follows: ℞. Sulpho-ichthyolate of ammonium 1·0 to 3·0, water, glycerine, and dextrine, of each 10·0; mix, with gentle heat (Unna); or ichthyol, grs. x to ʒj, lanolin, vaselin, zinci oxidi, pulv. amyli, āā ʒij (Ihle). Ichthyol may also be applied in the form of a superfatted soap as a salve muslin, or in a glycerine jelly. The best formula for the latter is that of Unna: Gelatinæ

15·0, zinci oxidi 10·0, glycerini 30·0, aquæ 40·0. To this 2 per cent. sulpho-ichthyolate of ammonium is added. Other substances, such as resorcin, tar, salicylic acid, etc., may be applied in the same excipient.

The results of scratching and inoculation of pus cocci must be dealt with on general principles, the leading indication being to make the parts thoroughly antiseptic. For this purpose one of the most useful applications is boracic acid ointment, prepared as already described. Unna's mercury-carbolic or salicylic plaster-mulls, or resorcin in the form of ointment (2 to 10 per cent.), are all very useful.

Passing next to the treatment of particular conditions, we have first to deal with **pruritus,** which is not only a disease in itself, but a symptom common to a very large number of skin affections. As it is always the one from which patients are most clamorous to be delivered, and as the practitioner's skill is measured by his ability to give the desired relief, a well-stocked arsenal of anti-pruritic remedies is an essential part of his therapeutic equipment. The subject is therefore treated with a fulness of detail which will hardly be considered disproportionate if it be borne in mind that the methods about to be described apply not only to pruritus as a disease, but to itching in general, the most troublesome and not infrequently the most refractory symptom of cutaneous disease.

In the treatment of pruritis the first indication is to discover and remove any local source of irritation. Silk, or the best merino-silk, underclothing should be substituted for flannel. In the intolerable itching about the anus, vulva, and meatus, that makes life a misery to some patients, careful examination will often reveal a definite focus of irritation recognised by the sufferer as the point from which the trouble starts. There may be nothing to see at the spot

indicated, or slight localised congestion or a tiny excoriation may be visible. In such cases the application of menthol or cocaine will generally relieve the itching for a time. When milder measures fail, however, the best plan is to destroy the focus of irritation. For the last ten years I have been in the habit of destroying the point to which the source of irritation is referred by touching it with Paquelin's thermo-cautery, after having applied cocaine. Whenever itching about the genitals, especially about the orifice of the urethra, is complained of by a person of either sex, the urine should be examined for sugar. Irritation due to glycosuria may be relieved by the application of menthol, or the parts may be bathed with water as hot as can be borne, and after drying smeared with ichthyol ointment (10 per cent.). In other cases the irritation may prove to be caused by ascarides, hæmorrhoids, or leucorrhœa. These various conditions must be treated by suitable remedies. Very common causes of local irritation are pediculi and itch-mites, the methods for detecting and destroying which are elsewhere described.

If no local cause can be discovered, general measures must be employed. The patient's diet must be carefully regulated, abstinence from coffee, tea, and sugar, in particular, being enjoined, and alcohol being absolutely forbidden. It will be well also if the patient can be induced to exclude shell-fish, pickles, and all highly-seasoned, salted, or preserved food from his dietary; white meats, green vegetables, and light milk puddings, should form his bill of fare, and he should drink nothing but aërated waters. If there be any evidence or reasonable suspicion of gout, salicylate of soda should be given in the ordinary doses; a combination of guaiacum and sulphurated antimony in the form of Plummer's pill is also often of great service. Such cases are likely to derive

benefit from a course of sulphur waters—particularly those of Harrogate (Old Sulphur Well), Strathpeffer, Aix les Bains, and Luchon. In senile pruritus, indifferent waters, such as those of Bath, Buxton, or Gastein, are more likely to be serviceable.

As regards internal medication—apart from the nerve tonics and sedatives that have been mentioned—carbolic acid and cannabis indica are the drugs most generally useful. Brocq speaks well of the former; he gives it in pills containing from 5 to 10 centigrammes of the acid combined with extract of gentian, and with digestive or anti-arthritic remedies, according to the indication. The amount of carbolic acid taken daily is from 20 to 60 centigrammes; the pills are taken at the beginning of a meal, water, soup, or food being swallowed immediately afterwards. Carbolic acid may also be given in pills composed of absolute phenol grs. ij, glycerine $\mathfrak{m}\frac{1}{4}$, powdered marsh-mallow grs. iij (to make one pill); or in *perles* of carbolic oil, each containing gr. j of carbolic acid. Cannabis indica is particularly recommended by Bulkley in senile pruritus; he begins with ten minims of the tincture, usually increased by degrees to twenty or even thirty, three times a day. The drug should be given largely diluted and the effect should be watched. The same writer also speaks well of a combination of tincture of gelsemium and a tincture of nux vomica. Ichthyol is often an efficient remedy; it may be given in doses of grs. ij$\frac{1}{2}$ in the form of capsule, tabloid, or coated pill. Digitalis and ergot are both occasionally of service. Antipyrin in doses of 10 to 15 grains is sometimes very useful, but its action is somewhat uncertain. The subcutaneous injection of nitrate of pilocarpin (gr. $\frac{1}{10}$), once a day, is often of the greatest service, owing, no doubt, to the moistening of the skin which it causes.

As a rule, however, itching can be relieved only

by external remedies. When pruritus is general, Turkish baths often give great relief, owing to their diaphoretic action and the thorough removal of effete epidermic material which results. Continuous emollient or alkaline baths are also most useful. The former may consist of bran 2 to 6 lbs., potato starch 1 lb., or linseed 1 lb. in 30 gallons of water; the latter of bicarbonate of soda ʒij to ʒx, or carbonate of potash ʒij to ʒvj, or borax ʒiij, in the same quantity of water. I have kept a highly neurotic patient suffering from intense itching in a bran bath for several days almost continuously in comparative comfort. An excellent bath for lessening the sensitiveness of the skin is made by mixing ʒij of sulphurated potash with 30 gallons of water. All these baths should be taken warm, and the skin may afterwards be rubbed with medicated soap or smeared with an ointment. Beginning with the simplest and most generally available remedies, an excellent application is plain hot water. A sponge dipped in this and partly squeezed out should be frequently firmly pressed on the itching part at short intervals. This method is particularly useful in itching of the anus and scrotum. When other applications are employed it is a good plan always to bathe the parts with hot water before putting on a fresh dressing. The application of a cooling lotion or ointment gives more relief if preceded by the local use of hot water as described; indeed, sudden alternations of heat and cold are of themselves useful in relieving itching. Simple evaporating lotions hardly ever fail to give temporary relief; they should be applied by means of pieces of linen or lint kept constantly wetted with the solution. A good evaporating lotion may be made by mixing ordinary vinegar with an equal quantity of water. A better application consists of equal parts of eau-de-cologne or spiritus

ammoniæ aromaticus and water. An excellent antipruritic lotion is liquor plumbi subacetatis ʒij to ʒiv, distilled water to ℥viij, or ʒj of the solution of the subacetate in ℥ij of fresh milk.

Alkaline lotions are also useful; they should be applied after the part has been washed and dried. Among such lotions may be mentioned the following:—Borax ʒij, glycerine ℥ss, water one quart; carbonate of potash ʒij, water ℥viij; bicarbonate of soda ʒj or ʒij, glycerine ʒjss, elder-flower water ℥vj.

One of the most effectual local agents is carbolic acid, which may be used in a watery solution (grs. ij to iv ad ℥j) or in the form of a lotion composed of ʒj of the acid and ʒij of pure glycerine, with water to ℥viij, or as a liniment containing 1 part of carbolic acid in 19 of olive oil. The following is a useful lotion: Acid. carbol. ʒj, glycerin. pur. ʒij, sp. vini rect. ʒiij, aq. camph. ℥v. Compresses soaked in these lotions should be applied every hour or two. Carbolic acid may be combined with cocaine in an ointment or a lotion. A useful formula for the former is acid. carbol. ♏xx, hydrochlorate of cocaine grs. x, vaseline ℥j; and for the latter, acid. carbol. ʒss, cocaine ʒss, aq. laurocerasi ℥j, aq. rosæ ℥ij. These should be applied several times a day. Carbolic acid may also be advantageously combined with mercury in an ointment as follows: Hyd. perchl. grs. ij to v, acid. carbol. ♏xx, ol. olivæ ʒj, benzoated oxide of zinc ointment ℥j. Brocq's carbolised pomade, consisting of grs. xv of carbolic acid, 5 drachms of lard, and 10 drachms of lanolin is an excellent application. He recommends that after it has been applied the parts should be well dusted with starch powder.

Among local applications one of the most valuable is menthol, which leaves the parts numb and cold for some time, to the great comfort of the patient.

This may be applied either by rubbing the affected surface with the solid cone previously wetted with alcohol or water, or better in a solution of 5 to 10 grains in one ounce of dilute alcohol. It may also be conveniently used in the form of soap. Eichhoff's menthol and eucalyptol soap is particularly useful. The refreshing coolness caused by menthol is often replaced after a time by heat, tingling, and even slight pain, somewhat resembling the re-establishment of the circulation after partial frost-bite.

Another most useful antipruritic remedy is cocaine, which can be used either alone or combined with almost any other substance. The most convenient form for general use is in an ointment with lanovaseline or boric acid ointment as a base. In pruritus ani a half-grain suppository of cocaine will usually give relief.

Chloroform is also useful in allaying itching. It may be employed in the form of an ointment containing ʒj to ʒvj of lanolin, or as a lotion of ♏xv to ℥iv of distilled water, and put into an eight-ounce bottle, so that it can be thoroughly shaken up before use.

Chloral is also beneficial as a local application; a solution of the drug in spirit or eau de cologne should be sprayed on the affected part after it has been exposed for some time to hot steam and then dried. Equal parts of chloral and camphor rubbed up together make a good antipruritic application.

Hydrocyanic acid is, in my opinion, a much overrated drug as an antipruritic. It may be used in the form of a lotion containing ʒij of dilute hydrocyanic acid, ʒj of borax, ℥viij of rose-water; or ʒjss of hydrocyanic acid, solution of acetate of ammonia ℥j, with rose-water to ℥viij. A much used lotion is the following, recommended by the late Mr. Startin: Borax, carbonate of ammonia, of each ʒjss,

glycerine ℥j, dilute hydrocyanic acid ♏iij, water ℥xvj; to be used diluted 1 to 4 times.

Salicylic acid can be applied diluted with glycerine or alcohol, or as an ointment containing grs. x to xv of the acid, vaseline and carbonate of zinc of each ʒj and cold cream to ℥j.

Mercurial applications are extremely valuable. Among them may be mentioned black wash, which may be used either alone or in a vehicle of mucilage of tragacanth, as follows: Lot. nigræ, liq. calcis, āā ℥iv, mucilag. tragacanth ʒj. The following is an excellent application: Hyd. perchlor. grs. v, spir. rosmar., spir. vin. rect., āā ℥j, emuls. amygdal. amar. ℥viij. A useful lotion may also be prepared as follows: Hyd. perchlor. gr. ij, glycerine ℥ss, aq. chloroformi ad ℥viij. Citrine ointment freely diluted is often of service in senile pruritus. Mercury may be combined with hydrocyanic acid, as in the following formula: ℞. Dilute hydrocyanic acid ʒj, corrosive sublimate gr. j, elder-flower water ℥vj.

The most convenient form of applying tar is the liquor carbonis detergens, which may be used diluted with water or spirit, to the proportion of 1 in 4 or weaker; or combined with solution of subacetate of lead, one to two drachms of each in ℥viij of rose-water. Lotio carbonis detergens may also be used with calamine lotion as a vehicle (ʒij of the former to ℥viij of the latter). Liquor rusci detergens, a solution of oleum rusci in spirit, can be used in the same way as lotio carbonis detergens. Tar may also be applied in the form of ointment as follows: ℞. Tar ʒj, camphoræ grs. x, adipis ℥j; or in pastes.

Naphthol is useful in the form of a soap or as an ointment, prepared as follows: Naphthol β grs. xx, lanolini ʒij, ung. simpl. ℥j.

Nitrate of silver in solution (grs. v to xv in ℥j of water or spiritus ætheris nitrosi) often gives

relief. Benzoin in the form of compound tincture painted on with a camel-hair brush, or a solution of benzoic acid ʒij in ʒviij of diluted alcohol, applied by means of compresses, is also useful.

Ichthyol may almost always be used with advantage. It is well to begin with a weak solution such as 1 in 16, and gradually increase the strength up to equal parts. The effect is often increased by the addition of a small quantity of precipitated sulphur. Ichthyol may also be applied in ointment, soap, or salve-mull.

Aconitine was successful in the hands of Sir Thomas Watson,* and I have not infrequently had reason to be satisfied with the effect of unguentum aconitinæ, which leaves a numbness that patients like.

In conclusion, a word of warning as regards the choice of a remedy to commence with may not be out of place. If the skin be greatly inflamed and excoriated, or if any eczematoid lesions have been produced by scratching, it will be well to begin local treatment with ichthyol, which does not irritate, but, on the contrary, has a marked sedative effect; spirituous solutions or sprays should never be applied when the skin is broken, as they cause considerable smarting and thus intensify the mischief.

In the treatment of **urticaria** the first thing to be done is to discover and, if possible, remove the cause (errors of diet, especially shell-fish, worms, parasites, or other source of reflex irritation). If the attack is distinctly traceable to indigestion, or to poisoning by mussels, etc., an emetic should be given if the symptoms are very severe; in milder cases a smart saline purge will cleanse the intestinal canal of the toxines, which are the cause of the trouble. The patient should be kept on bland

* "Principles and Practice of Physic," 4th edition, London, 1857, vol. ii. p. 928.

unirritating diet for a few days, if fever be present; and, especially if the urticaria be of malarial origin, quinine in full doses may be given with advantage. If there be any reason to suspect a gouty element in the case, it must be dealt with on general principles, alkalies being particularly useful. The itching may be allayed by means of any of the local applications recommended for the treatment of pruritus, simple evaporating lotions being generally sufficient for the purpose. Brocq recommends that the patient's body-linen should be impregnated with starch powder, and that he should sleep in fine sheets sprinkled with the same material. It is most important to prevent chill. For this reason it is well, whenever the patient will submit to such a course, to keep him in bed. I have known patients derive benefit from exchanging a linen for a flannel nightdress. Excessive heat should also be avoided. The clothing should be light, and the underclothing especially should not be of such a nature as to cause irritation of the skin. The effects of scratching must be treated as already indicated.

In chronic cases the bowels must be carefully regulated, and any constitutional state that may appear to be associated with the skin affection should be treated on general principles. Quinine is very often beneficial. All food of a stimulating character, and alcohol in any form, must be avoided. When these general measures prove unavailing, an attempt may be made to act directly on the vaso-motor centres by means of sulphate of atropia, which may be given internally as a pill, containing gr. $\frac{1}{120}$ to gr. $\frac{1}{100}$, with sugar of milk and glycerine of tragacanth. This pill should be given at night. The drug may also be administered by subcutaneous injection (gr. $\frac{1}{150}$, very cautiously increased). Ichthyol in gradually increasing doses is

one of the best drugs at our disposal. Chronic urticaria, which has resisted all medical treatment, is often cured by the rest and freedom from worry given by a holiday. A sea voyage is often efficacious when other means fail.

For **urticaria pigmentosa** various kinds of treatment have been tried, without producing any appreciable modification of the morbid process. Belladonna internally, and atropine in hypodermic injections, have been recommended; but the clinical evidence at present available is insufficient to warrant a definite judgment as to the efficacy of this method. The itching may be relieved by the measures that are found useful in ordinary urticaria. Apart from this, the principal indication is to build up the general health on as solid a foundation as possible.

The treatment of **prurigo** must be conducted on the lines laid down for pruritus. In addition to the internal and external remedies for itching already described in detail, a liberal supply of nutritious food is always of the greatest importance, especially in the case of children. Cod-liver oil and iron may also be given in most cases with advantage.

For **erythema simplex** no treatment is required beyond the removal of any obvious source of irritation. Itching may be relieved in the manner described under pruritus. In *intertrigo* the opposing surfaces should be separated by small pads of lint or cotton-wool, placed above and below the diseased area, or by the interposition of a muslin bag filled with powder as already described. As in the situations where intertrigo is apt to occur decomposition of the secretions is likely to take place, with the result of greatly intensifying the irritation, the parts should be frequently washed with a solution of boracic acid (grs. 10 to 15

in ℥j of distilled water), then carefully dried, and finally thickly dusted over with some protective powder. In the case of infants the strictest cleanliness must be enjoined; napkins must be changed as soon as they are wet; other conditions keeping up irritation—such as diarrhœa or worms—must be treated by appropriate remedies.

In commencing **erythema paratrimma** (bed-sore) the pressure must, as far as possible, be neutralised by the use of air-cushions or circular pads, or by keeping the patient on a water-bed. The greatest attention must be paid to local cleanliness, and the nutrition of the affected area should be kept up by frequent washing with stimulating applications — such as a mixture of brandy or rectified spirit and white of egg, camphorated spirits of wine, etc. If, in spite of this, a bed-sore forms, it must be treated on general surgical principles.

In **scarlatiniform erythema** the cause must first, if possible, be removed; in other respects treatment must be symptomatic. It is most important, for obvious reasons, to avoid the use of all drugs that have the property of causing rashes (see "Artificial Eruptions," page 178); Besnier has even recorded fatal results from this cause. Locally cooling and soothing applications (simple or boracic acid ointment, calamine liniment, etc.) are grateful to the patient and may do some good.

In the treatment of **erythema pernio** (chilblain) the principal indication is to stimulate the circulation in the affected region. For this purpose the parts should be kept warm; and, unless the feet are disabled, brisk walking exercise should be taken. One of the best local remedies is iodine, applied in the form of the tincture. Friar's balsam and camphorated spirits are also excellent remedies. One point of great

importance is to dry the part as thoroughly as possible after washing. If vigorous friction with a towel or piece of lint can be borne, it will be useful. Ulceration, should it occur, must be treated on general surgical principles. If the patient is anæmic, ferruginous tonics should be given; and if the heart's action is weak, it may with advantage be strengthened by the administration of digitalis. As regards prevention, the only thing likely to be effectual is to keep the circulation active by warmth (woollen gloves for the hands, thick worsted stockings for the feet), and especially by vigorous exercise. The skin may also be hardened by the use of toilet vinegar in the water used for washing.

In the milder cases of frost-bite care should be taken not to warm the parts too quickly; rubbing with snow is recommended, and this must be continued till the circulation begins to be restored. Ichthyol, owing to its influence on hyperæmia and circulatory anomalies generally, is of great service; it may be taken internally and used locally, a 10 per cent. salve being rubbed into the affected part. Massage and galvanism are valuable adjuncts in the treatment.

Erythema keratodes, according to Brooke, yields readily to the internal administration of ichthyol (mij) in capsules thrice daily, and the constant application of an ointment containing ichthyol and salicylic acid. Dubreuilh cured his case with iodide of potassium internally (given on the hypothesis that the affection was syphilitic), and the application of diachylon ointment to which 20 per cent. of salicylic acid had been added.

Erythema multiforme runs a definite course and is not much influenced by treatment. The symptoms may, however, generally be mitigated by the exhibition of drugs that have a directly sedative action

on the nervous system, such as opium, belladonna, quinine, used in the manner already described. Arsenic is often of service when the inflammatory symptoms are not intense; if they are, antimony should be given in the form of vinum antimoniale (♏iij to ♏v in ℥j of water). The diet should be of the plainest and least stimulating character, and alcohol must be forbidden. The calamine lotion already mentioned is the best local application to relieve the pain and burning.

The chief indications in the treatment of **erythema nodosum** are rest, and the neutralisaton of the effects of the rheumatic poison if there be evidence of its presence. Salicylate of soda in doses of from 10 to 15 grains, according to age, should be given three times a day for this purpose. When the swelling and other local symptoms have subsided an iron tonic is generally indicated. Rest in bed with elevation of the affected limbs in addition to the application of soothing or cooling lotions is necessary. The swellings should never be opened, however distinctly they may fluctuate.

The treatment of **peliosis rheumatica** may be summed up in the following recommendations:—Rest in the horizontal position until the lesions have disappeared; the administration of salicylates, followed by quinine and iron; and a liberal diet.

In the earlier stages of **lupus erythematosus**, if the hyperæmia is active, evaporating lotions or cooling ointments or salve muslins, calamine lotion, lotio carbonis detergens, and the solution of subacetate of lead are all useful. The best application of all is ichthyol in the form of a lotion or an ointment, or as a zinc ichthyol salve-mull applied at night after bathing the parts with hot water. When hyperæmia is less pronounced, Hebra's spiritus saponis kalinus (to which oil of cade, ℥j or ℥ij to ℥j, may

sometimes be added with advantage) should be rubbed on with lint or flannel. By this means the scales and fatty plugs are removed. The application may be repeated every few days. Resorcin (10 per cent. in collodion) is a useful remedy, and salicylic acid (3 to 6 per cent. in collodion) is in some cases still better. Pyrogallic acid used in the manner recommended by Veiel frequently gives good results. He applies a 10 per cent. ointment of the acid for three or four days or till such time as a brownish eschar forms; when this separates the wound should be dressed with iodoform. If chemical caustics fail to give satisfactory results, linear scarification with a suitable instrument (Squire's or Veiel's, modified by Pick), followed by the rubbing in of iodoform, or the application of a mercurial or salicylic acid plaster-mull, will sometimes effect a cure. The procedure may be repeated as often as required. The thermo-cautery lightly applied followed by the application of iodoform, boracic acid, or other antiseptic powder, also gives good results. Internally general tonics should be given if indicated, and any unfavourable constitutional state should be dealt with by appropriate measures. Ichthyol internally in the form of pill sometimes seems to reduce the hyperæmia. Some writers lay great stress on the internal use of arsenic, but I cannot say that I have ever seen any good effect follow the administration of this drug. Bulkley recommends phosphorus ($\frac{1}{50}$ to $\frac{1}{30}$ gr. three times a day).

In **rosacea** the first object of treatment is to get rid of possible sources of reflex irritation by correcting any functional disorder of the stomach, liver, bowels, ovaries, etc., that may exist. The diet must be carefully regulated, whatever causes flushing of the face being avoided. Abstinence from alcoholic stimulants should be enjoined, and it would be well

also if the patient could be induced to forego tea and coffee. Arsenic is seldom of use. After the removal of any obvious cause, the most trustworthy internal remedy is ichthyol, which often brings about a marked improvement after even a few days' administration. It regulates the bowels, prevents flatulence, helps the digestion, stops the reflex flushing, and steadies the circulation. I usually begin by ordering five grains in capsules, tabloids, or pills, to be taken on an empty stomach early in the morning and late at night. In a few days I increase the dose to seven and a half, and afterwards to ten grains and upwards until the desired results are obtained. In addition to the internal administration of ichthyol, local treatment on the lines laid down for acne vulgaris (see page 343) will be required if there be inflamed papules and pustules. The varicose venules may be destroyed by scarification, the superficial use of Paquelin's cautery, or, better still, by electrolysis. Hypertrophic excrescences should be pruned with the knife, and pendulous growths must be dealt with by ordinary surgical procedures.

No treatment appears to be of much avail in curing or even controlling **dermatitis herpetiformis.** All that can generally be done is to relieve pain and induce sleep by hypodermic injections of morphine or opium internally, and soothe irritation by some of the means already described. No spirituous lotions should, however, be employed, as they cause smarting of the skin, which is always raw and tender. The rubbing in of weak sulphur ointment is the local measure which has so far given the best results; the inunction should be done with some degree of force so as to rupture the vesicles and bullæ. This method should be employed at first over a limited area so as to minimise the risk of setting up dermatitis. The application of almond or carbolic oil to

the whole surface sometimes gives relief. Schwimmer* has had satisfactory results with thiol, a solution (10·0 to 30·0) of which was painted over the affected surface twice daily for two or three days, the skin being then carefully washed with pure water. Of internal remedies arsenic is probably the most efficient, although in many cases it seems to have little or no effect. In the early stages, when the inflammatory symptoms are very marked, antimony given as already directed may be useful. Iron, phosphorus, and nerve tonics may do good by supporting the strength and bracing up the nervous system, especially in the later stages of the disease. Warm bathing gives relief in some cases, but in others appears to aggravate the symptoms. The diet should be strictly regulated, all substances that have any tendency to disagree being carefully avoided, and liquids such as coffee, generous wines and spirits, which stimulate the heart and cause an increased flow of blood to the skin, being absolutely prohibited. Disturbing emotions of all kinds are likely to intensify the evil, and the patient should expose himself as little as possible to vicissitudes of temperature.

In regard to the treatment of **herpes gestationis** there is nothing to be added to what has been said concerning dermatitis herpetiformis, except to warn the practitioner to be cautious in the use of internal remedies in view of the patient's condition.

Impetigo herpetiformis is very refractory to treatment. All that can be done is to relieve the local symptoms by continuous baths and cooling applications, and to support the patient's strength.

In **cheiropompholyx** the local lesions must be treated on the lines laid down for pruritus. Constitutional treatment is almost always required,

* *Wien. klin. Wochenschrift*, 1890, No. 18.

tonics in the form of iron and arsenic separately or in combination, quinine, and strychnine being especially indicated. Violent exercise or alcohol in excess or anything tending to promote sweating must be avoided. Dietetic errors must be corrected, and digestive disturbance rectified. Change of scene and mental diversion are often important factors in the treatment.

In the treatment of **pemphigus** the chief reliance must be placed on the internal administration of nerve tonics. The sheet anchor is arsenic, which is more of a specific in this than in any other skin affection. It must not, however, be looked on as an absolutely unfailing remedy. It should be given in the form of Fowler's solution, beginning with a dose of three drops, gradually increased to five, seven, eight, and even ten, three times a day. When arsenic fails quinine is often beneficial; in other cases opium is the most efficient internal remedy. Phosphorus, ichthyol, and belladonna are all occasionally useful. The local lesions must be treated on general principles, the itching being relieved by one or other of the methods already described. If the bullæ are very large and tense they may be pricked with a sterilised needle, and afterwards dressed with boracic acid ointment or carron oil; if the skin around them be much inflamed, cooling ointments will give relief. In pemphigus foliaceus continuous emollient alkaline or sulphurated potassium baths ease pain, and often prevent exhaustion by enabling the patient to sleep. Kaposi kept a patient under this treatment with great benefit for more than four years, during which—without counting shorter periods—he spent eight months day and night in the bath. Fever and other constitutional disturbances accompanying the skin affection must be treated on general principles. A leading indication

in all forms of pemphigus, especially in pemphigus foliaceus, is to support the strength by suitable food.

In the treatment of **irritative herpes** the only treatment usually required is the application of soothing and antipruritic lotions or ointments, or protection of the affected surface by sprinkling with powder (oxide of zinc, starch, subnitrate of bismuth, etc.), or muslin bags. When the genitals are the seat of the eruption the parts must be kept scrupulously clean, and the surfaces should be kept apart with a piece of lint steeped in boracic acid or calamine lotion. Black wash is a particularly useful application in genital herpes. If the patient be of gouty constitution, appropriate medication will be required.

In the treatment of **herpes zoster** the chief indication is the relief of pain, which is often acute. For this purpose menthol is often useful, but subcutaneous injection of morphine may sometimes be needful. It is important to protect the lesions from friction and to keep the parts warm; they should be dusted with a protective powder, such as oxide of zinc and bismuth, with the addition of a small quantity of morphia, if necessary; they should then be covered with a thick layer of cotton-wool. Internally, antipyrin in ten- to fifteen-grain doses is useful in relieving the neuralgic pain, and tonics such as quinine, iron, strychnine, arsenic, etc., are generally beneficial. If the patient is in a low condition of health, cod-liver oil and feeding up are indicated. If the pain is very severe, the application of the continuous current along the course of the nerve is often most useful. Division, stretching, or resection of the nerve has been known to relieve the pain in severe old-standing cases affecting the supra-orbital nerve.

The indications for the treatment of **sclerodermia** are to guard the patient against cold, to

improve nutrition by cod-liver oil, iron, etc., and to stimulate the circulation in the affected parts by massage and galvanism. Arsenic is sometimes useful.

Lichen ruber planus must be treated on the general lines already laid down for the treatment of skin affections of nerve disorder. Arsenic is particularly valuable if given in large doses and continued for a long time. Kaposi, following Hebra, looks upon this drug as a specific. In the case of children he gives it in the form of Fowler's solution, beginning with two drops daily and increasing the dose by very slow degrees; in adults he gives it in the form of Asiatic pills, or hypodermic injections of Fowler's solution. The treatment is begun by the administration of three pills a day, increasing every four to five days by one pill, until a daily total of eight to ten pills is reached. As a rule no improvement is perceptible before a period of six to eight weeks has elapsed, in which time the patient will have taken from 200 to 500 pills. The patient continues taking eight to ten pills daily till the affection has almost entirely disappeared, when the quantity is gradually reduced to six pills daily. This amount the patient continues to take for three or four months after the final disappearance of the eruption. I agree with Besnier, however, who, while admitting that arsenic often gives satisfactory results in lichen, says that in some cases it fails, while others get well without it. However free from danger the method may be in experienced hands, the use of arsenic in such heroic doses is hardly to be recommended as a routine practice. Locally, the remedies indicated in lichen are those recommended for itching. Unna cured a series of cases in three weeks, without any internal treatment whatever, by means of frictions twice a day with a pomade composed of one gramme of corrosive sublimate, 20 grammes of carbolic acid,

and 500 grammes of simple ointment, the patient afterwards being wrapped up in linen cloths and put to bed. Pyrogallic acid (five to ten per cent.) rubbed on the affected parts is often useful in old-standing patches. Mercurial plasters are beneficial when the lesions are confluent, but if the surface thus treated is extensive the practitioner must be on his guard for symptoms of mercurialism. In old atrophic patches the cautery may be required. In a case under my care hypertrophic masses which microscopically presented all the appearances of commencing epithelioma were left in the labium and had to be removed.

In the treatment of **leucodermia** there is little to be done. It is impossible to restore the lost natural colour, though the surrounding increase of pigment may be modified by the application of weak corrosive sublimate lotion or peroxide of hydrogen.

In **Raynaud's disease** the most efficient remedy is galvanism. The constant current should be applied by immersing the affected extremity in a large basin of salt water, one pole being placed in the water while the other is applied to the limb. If this treatment be employed sufficiently early the progress of the disease will often be cut short. Massage is also very useful, and the internal administration of ichthyol, arsenic, or quinine may sometimes prove of service. When gangrene has taken place the treatment must be conducted on ordinary surgical principles.

Acute circumscribed œdema must be treated on the lines laid down for urticaria, of which it is a variety.

In **hysterical œdema** the main part of the treatment must be directed to the restoration of the nervous system to a condition of healthy equilibrium.

In the treatment of **pellagra** the most important feature is prophylaxis. When the disease is

developed, treatment must be symptomatic, opium, quinine, and calomel being used according to the indications. Arsenic is said by Lombroso to be the most efficient remedy; it should be given in small doses ($\frac{1}{2}$ to 2 minims of liquor arsenicalis daily). Attention must be paid to the hygienic surroundings of the patient.

CHAPTER IX.

ARTIFICIAL ERUPTIONS.

Artificial eruptions include all skin lesions produced by the external or internal action of some substance foreign to the economy. They divide themselves naturally into two great groups :—1. Eruptions caused by the direct contact of irritant substances with the skin (dermatitis venenata). 2. Eruptions following the ingestion of substances that have a toxic effect on the system, manifesting itself by the production of certain lesions on the skin (toxic dermatitis).

External Agents.

The first of these divisions includes all cutaneous affections produced by external agents. These may be of animal, vegetable, or inorganic nature. Among the animal substances causing irritation of the skin are :—(*a*) Parasites (lice, fleas, etc.) ; (*b*) jelly-fish, gnats, wasps, mosquitoes, etc. ; (*c*) irritating discharges from the body itself (in coryza, gonorrhœa, and diabetes). Among vegetable irritants are :—(*a*) Vegetable parasites (achorion Schoenleinii, microsporon furfur, etc.) ; (*b*) vegetable substances that come accidentally, or in the way of occupation, in contact with the human skin (rhus venenata and toxicodendron, thapsia, the common orange, arnica, etc., etc.). Among other substances giving rise to skin eruptions by direct contact may be mentioned mustard, sugar, soap, paraffin, etc. The lesions caused by parasites, whether of animal or of vegetable nature, are described in chapter xiv.

The influence of these various agents on the skin shows the greatest diversity as regards the nature and severity of the lesions. As a general rule it may be stated that the effect is proportionate to the length of time during which the contact is prolonged. The lesions may simulate almost any disease of the skin. The erythematous type largely predominates, but frequently the eruption takes the form of urticaria or eczema. The severity of the process varies from a simple patch of erythematous redness, readily disappearing under pressure, to violent inflammation of the skin, presenting all the outward characters of erysipelas, and even to bullous eruptions, followed by the formation of eschars and ending in widespread ulceration and gangrene. Between these two limits every degree of the inflammatory process—papules, vesicles, bullæ, wheals, and pustules—may be seen. The erythema is always followed by more or less desquamation; the vesicles, bullæ, and pustules by crusts and scabs. As the result of prolonged irritation the skin sometimes becomes thick, harsh, and wrinkled, while it is at the same time the seat of a chronic eruption characterised by papules and excoriated vesicles and resembling lichenoid eczema (Brocq).

As typical examples of the effect produced by certain vegetable irritants on the skin, mustard and rhus may be taken. The former produces redness and vesication; in some cases the process may run on to an actual dermatitis of erysipelatoid character, and even ulceration may be produced. The lesions may persist for several weeks. There are three varieties of rhus, all of which have strongly irritant properties, but only certain persons are susceptible to their action. Those in whom the idiosyncrasy is very pronounced may be affected even by the volatile emanations from the plant. The eruption is usually eczematous in

character; the hands, arms, and face may be enormously swollen. Distant parts may share in the general eruptive disorder of the skin. There is always intense itching. Erysipelatoid inflammation of the skin and dermatitis exfoliativa are not infrequently observed. Rhus vernix is much employed in Japan, and to it the so-called "lacquer poisoning" is due. Touching furniture that has been varnished with this substance, or even sleeping in a room where some of the furniture has been so treated, often suffices to induce an attack in those predisposed thereto. The effect on the skin is violent dermatitis, with much swelling of the eyelids and face generally, and with more or less severe headache, dizziness, and constitutional disturbance.

Trade eruptions.—Among eruptions caused by the contact of irritant substances, a large proportion are of the nature of diseases of occupation. Thus persons whose employment brings their hands or other parts of the body in frequent contact with paraffin, petroleum, tar, bichromate of potash, sugar, salt, lime, sulphur, croton oil, etc., are all subject to eruptions of varying character and degrees of severity which are directly due to their occupation. Bakers, paperhangers, dyers, tanners, chemists, washerwomen, etc., often suffer from skin eruptions that are the direct result of the irritating contact of the substances they handle. The lesions in each of these cases may assume any of the forms that have been mentioned, but in the majority of them the affection more or less closely simulates eczema; and in patients predisposed to affections of the skin the trade eruption not infrequently develops into true eczema if the irritation causing it is sufficiently prolonged. (See Plate II. Fig. 2.)

Feigned eruptions.—Artificial eruptions are sometimes produced by the patients themselves,

either for the purpose of exciting sympathy or of escaping from work. The subjects are mostly hysterical girls, beggars, prisoners, malingerers, or lunatics. Some of these impostors become by practice artists of sufficient skill to deceive the unwary practitioner. The substances used are chiefly croton oil, nitric acid, carbolic acid, essence of turpentine, iodine, mustard, thapsia, cantharides, and urine. The points which should give rise to suspicion are:—The situation of the lesion (breast, limbs, or other easily accessible part, the left side being for obvious reasons much more often chosen as the seat of operation than the right); the total absence of eruption in other situations; the anomalous outline of the lesions, which may be angular, and may resemble nothing seen in disease; the want of symmetry, or less frequently the too perfect symmetry, at once suggesting the work of art rather than nature. Circumstantial evidence of fraud is also frequently supplied by the smell of the agent with which the lesions have been produced (*e.g.* turpentine), by stains on the skin or the clothes (*e.g.* nitric acid), or by particles of mustard or other irritant being found on the patient.

The affections most often simulated are erythema, ulcerations, and chromidrosis (caused by blacklead, etc.). Colcott Fox and Sangster have reported cases in which sores on the skin were produced by perseveringly rubbing a spot with the ends of the fingers moistened with saliva.*

In the French army thapsia juice is in great favour with malingerers, on account of the erysipelas-like inflammation of the skin which can be induced by means of it.† Patients of this kind will often inflict a good deal of pain on themselves, and will snip out

* *Lancet*, December 30th, 1882.
† *Arch. de Méd. et de Phar. Mil.*

pieces of skin with scissors, burn themselves with lighted matches, etc., with a fortitude worthy of better cause.

Internal Agents.

Among eruptions caused by internal agents are included all those produced by substances swallowed either as food or as medicine. In the former case the agent is generally a particular article of diet towards which the patient exhibits an idiosyncrasy. The eruption which in many persons follows the eating of shell-fish, especially mussels, may be taken as the type of this skin affection *ab ingestis*. The process has already been described under "Urticaria," and need not be further referred to here.

Drug eruptions.—Drug eruptions, properly speaking, include those caused by the external as well as the internal use of medicinal substances, inasmuch as a drug applied to, and producing lesions in, the skin may also be absorbed into the circulation, so that it is difficult to separate the one effect from the other. In this province, as Brocq well says, individual susceptibility is the most important factor; it is that which determines the appearance of the eruption and the form which it assumes. The eruptions caused by drugs present a variety of type that defies all classification; they may be erythematous, urticarial, papular, vesicular, bullous, etc., etc. A particular patient generally reacts in the same way to the same drug. The lesions are seldom multiform at a given time, though almost every variety may be exhibited in the course of an eruption at different stages.

As for the mode in which drugs produce eruptions, various theories have been advanced. According to Farquharson, when from any cause there is diminished activity of the kidneys, which are the natural channels by which most medicinal substances are eliminated, the

skin vicariously assumes the functions of these organs, and the drug, in working its way outwards through the cutaneous glands, irritates the skin and produces lesions of various kinds. This theory would imply that before an eruption can be produced the drug must have accumulated to a greater or less amount within the body. This, however, is not by any means the rule, for the smallest dose of a drug will produce an eruption in some persons, while in other cases very large doses may be taken for a long time consecutively without producing any effect whatever on the skin. Another theory is that certain drugs have an elective affinity for certain anatomical elements, and that in this way some medicinal substances naturally gravitate, as it were, to the cutaneous glands. In proof of this is adduced the fact that traces of the drug are often found in the lesions which it has produced. This, however, is probably nothing more than an accident; it is certain that the most careful tests frequently fail to reveal any trace of the drug in the cutaneous lesions, while it is readily found in the urine.

Behrend has advanced the view that drug eruptions, with the exception of those caused by the bromides and iodides and the erythemas produced by belladonna, hyoscyamus, stramonium, and possibly arsenic, are due to the presence in the blood of some foreign material generated by the action of the drug; this material he thinks probably of chemical nature. It is a sufficient refutation of this theory that drug eruptions are often confined to particular parts of the cutaneous surface; whereas, if they were due to an alteration in the blood, one would expect to see them wherever that fluid circulates. My own view is that —at least in the majority of cases—the mechanism of drug eruptions is the same as that of the erythematous, vesicular, bullous, and pustular affections which

they simulate —that is to say, the process is angio-neurotic in character. It has already been explained that the simple mechanism of vaso-motor paralysis, followed by the phenomena of congestion and inflammation in varying degrees, is sufficient to account for the production of an ascending series of lesions, ranging from simple erythema up to gangrene; and inasmuch as all these various lesions are simulated by drug eruptions, there appears to be no reason to look further for an explanation of their mode of action. In short, it may be stated that drug eruptions arise in response to irritation of nerve endings, as when medicinal substances are applied externally to the skin, or to irritation of nerve centres (vaso motor), as when drugs are taken internally.

Morrow has pointed out that a large proportion of the medicinal agents which determine eruptive disturbances act specifically upon the nervous system. From this point of view, the individual predisposition or idiosyncrasy, which is a necessary underlying condition for the production of drug eruptions, is, as has already been said in a previous chapter, nothing but abnormal excitability or instability of the nervous system. This may possibly be combined in the class of cases under consideration with undue susceptibility of the skin to irritation. The skin, being the organ of tactile sensation, is in the most intimate connection with the nervous system. So close, indeed, in some persons is the sympathy between the nerve centres and the skin that the latter is, as it were, a mirror on which every passing shade of nervous impression or mental emotion is reflected. It is not, therefore, to be wondered at that it should often respond sympathetically to nervous disturbance produced by central or peripheral irritation. In the case of drugs which excite or irritate the nervous system, it may be laid down as a general rule that the greater

the nervous disturbance the more severe will be its manifestations on the skin.*

The diagnosis of drug eruptions is not always easy. Those following the external application of irritating substances are usually limited to the part with which the agent has been in contact; moreover, in some cases the lesions themselves present certain definite characters, by which they can be recognised. These will be referred to in connection with the several agents. The rashes produced by drugs taken internally often simulate those of the specific fevers, or of certain toxæmic conditions, so closely that, if rise of temperature and constitutional disturbance happen to be associated with them, it is almost impossible to distinguish them. Thus, copaiba eruption resembles that of measles, and those of belladonna and quinine that of scarlet fever. An important point is the sudden occurrence of an eruption during the administration of a drug, and if, on discontinuing the use of that drug, the eruption vanishes, it may safely be concluded that the two stood to each other in the relation of cause and effect. In addition to this, the drug may be found in the urine, the saliva, or the sweat. This, as a rule, holds good only when the drug has been taken in large quantities, or for a long period of time. In the case of certain substances—such as turpentine and other essential oils—their presence in the urine is often obvious to the sense of smell; in the case of the balsamic preparations the drug reveals itself by the smell of the patient's breath. Others, again—such as arsenic and nitrate of silver—produce a characteristic discoloration of the skin which is

* For a lucid discussion of the mode of action of drugs in producing skin lesions the reader is referred to the valuable papers by H. G. Brooke on "Behrend's Division of Drug Rashes into Specific and Dynamic Groups" (*Brit. Journ. Dermatol.*, Oct., 1890), and to Colcott Fox's "Contribution to the Study of Drug-Eruptions" (*ibid.*, Nov., 1890).

sufficient of itself to indicate the cause. As a general rule, it may be said that in the case of eruptions appearing suddenly, or presenting features different from those seen in idiopathic skin affections, the practitioner should always make careful inquiry as to what medicines the patient has been taking. It is impossible, within the limits of a small text-book, to deal exhaustively with all the varied lesions that may follow the use of drugs; and, after all, there are only two that give rise to eruptions of a sufficiently definite character to be pathognomonic. These are bromine and iodine and their compounds. The skin lesions to which these substances are apt to give rise will therefore be considered in some detail, and a brief summary of the principal effects on the skin that may be produced by some of the drugs in every-day use—such as arsenic, copaiba, mercury, opium, belladonna, and quinine—will be given. The effects of other drugs on the skin are indicated in a tabular summary. (See page 199.)

Bromide eruptions.—Characteristic eruptions are caused by the use of bromine or its compounds—bromides of potassium, ammonium, sodium, etc. The primary lesions may be papules, vesicles, wheals, bullæ, or erythematous patches, but by far the most common and characteristic lesion is a papulo-pustular eruption (bromic acne) which is said to occur in about 75 per cent. of all patients treated with bromide of potassium. Bromic acne presents a considerable resemblance to acne vulgaris. Unlike the latter, however, the bromic lesion does not confine itself to parts rich in sebaceous glands, and the papulo-pustules always develop without the antecedent existence of comedones (Morrow). Bromic acne shows a marked preference for hairy parts of the skin. The papules, as a rule, precede the pustules, and they are seen about the forehead and nose and the back of the shoulders, especially in persons

whose skin is thick and greasy. They commence as small hyperæmic patches on an indurated base. Most of them are pierced by a hair. They may undergo no change for weeks, or they may quickly become transformed into pustules of a yellowish-white colour. Sooner or later the contents escape and a hard nodule or pigmented spot remains. They often give rise to small rounded cicatrices. This pustular eruption generally persists as long as the administration of the drug is continued, and the number of lesions increases as the dose is augmented (Veiel). On discontinuing the drug, the eruption, as a rule, disappears in from one to three weeks. In women, in children, and especially in infants taking bromides, the predominant type of lesion caused by the drug is the "confluent acne" described by Cholmeley. This at first resembles varicella, the vesicles, however, running together instead of drying up, and forming clusters, which continue to enlarge and finally suppurate. In course of time, in this way, flattened elevations are formed, covered with thick light-brown crusts, and surrounded by a zone of redness. There is a tendency in these lesions to papillary hypertrophy, sometimes to such an extent as to simulate condylomata. The legs are the chief seat of this eruption.

Furuncular and anthracoid forms of bromide eruption are not uncommon. The boils, which are mostly of small size, are commonly seen in the situations generally affected by ordinary furuncles (forehead, neck, hairy parts of face), while the anthracoid swellings are usually found on the face and limbs, seldom on the trunk. The swellings are red in colour and well defined. The tops are dotted with numerous yellow points which give them something of the appearance of a carbuncle. After a time a scab is formed, and involution takes place rapidly if the drug is discontinued. If it is pushed, however,

ulceration is pretty sure to take place. Sometimes the bromide eruption assumes an ulcerative character almost from the first. Large, irregular ulcerated patches form symmetrically on the legs. The ulcerated surface is firm and is composed of large raised masses, often papillomatous in appearance. Warty growths on the face have been described as a result of bromide medication (Veiel). Though bullous elements are sometimes associated with other lesions due to bromide, true bullæ without more or less solid base and with fluid contents are rare (Colcott Fox). The appearance of bromide eruptions is not, as a rule, accompanied by fever or constitutional disorder. They not uncommonly develop on scar tissue. They often begin in the neighbourhood of the sebaceous glands and hair follicles, but are not by any means confined to these situations. Idiosyncrasy plays a comparatively subordinate part in the production of bromide eruptions. So constant, indeed, is their occurrence, given the necessary conditions of dose and persistence of administration, that the changes in the skin may with propriety be classed among the exaggerated physiological effects of the drug. Idiosyncrasy does, however, come into play in some cases when very small doses are followed by the development on the skin of some of the lesions that have been described. The drug in all probability produces its effect through the nervous system; but at present there are not, so far as I am aware, any data from which its exact *modus operandi* can be inferred.

The acneiform bromide eruptions lesions are easily distinguished from those of acne vulgaris by the absence of comedones, and by their occurrence at any period of life and on any part of the body. The anthracoid swellings are differentiated from carbuncle by the absence of a red border and of brawny induration around. In many cases the smell of bromine in the

breath and its presence in the urine at once point to the true origin of the skin lesions.

Iodic eruptions.—Eruptions produced by the action of iodine or its salts (iodide of potassium, iodide of ammonium, iodide of sodium, etc.) are

Fig. 3.—Iodide Eruption. (From a photograph taken by Mr. Crowle.)

erythematous, papular, urticarial, vesicular and sometimes bullous in type. The erythematous form is the most frequent among the earlier manifestations of the influence of the drug on the skin. The redness may be scattered about in small or large patches, or pretty generally diffused, the favourite situations being the chest, the face, and the fore-arms. At a later period papules and wheals may develop on the erythematous ground, and on these wheals large

capillary vessels are frequently seen. Vesicles may also develop on the erythematous patches. These are usually discrete, and are sometimes associated with wheals, around which a ring of clear vesicles may form. The bullous type of eruption is comparatively rare. The bullæ are sometimes mingled with vesicles and pustules. They may be as large as a pigeon's egg, and if two or three coalesce, as they sometimes do, enormous blisters may be formed.

The iodic eruptions often commence as hard papules which have the shot-like feel characteristic of the earliest stage of small-pox pustules. As these become transformed into vesicles they frequently show a tendency to umbilication. They are for the most part surrounded by an erythematous areola, and the skin about them is generally more or less infiltrated. The papulo-pustular form is the most common and the most characteristic eruption caused by the iodides. The face, the upper part of the chest, the backs of the shoulders, and the arms are the parts where it chiefly shows itself. This form also begins as shot-like papules, which become pustular either at the summit or throughout their whole depth as they develop. These pustules dry up and form crusts which leave a scar on becoming detached. In other cases the papules develop into vesicles and even bullæ, or they may become transformed into red, hard nodules deeply implanted in the tissues and disappearing very slowly. From these elementary lesions various more complex forms of eruption—ecthymatous, condylomatoid, molluscoid, etc.—may arise. Among the other forms of eruption caused by iodides there is one of carbuncular type resembling the "confluent acne" already described as a frequent effect of the bromides. The little boil-like nodules are violaceous in colour, with a depressed centre covered with a scab and studded at the circumference with numerous

sebaceous-looking pustules. When these lesions disappear they leave a brownish scar. A purpuric eruption sometimes appears on the legs as the result of treatment with iodides (Fournier). The petechiæ almost always come out within a very few days of the beginning of treatment. Stephen Mackenzie has reported a fatal case of iodic purpura in a child caused by a single dose of two and a half grains.* A nodular form of iodide eruption has been described (Fig. 3). Hard, red, painful nodules, varying in size from a nut to an egg, come out on the face, neck, buttocks, thighs, and calves. The eruption closely resembles erythema nodosum. As a rule the effect of iodides on the skin is restricted to one type of lesion in any given case, but sometimes the eruption is polymorphous. Iodide eruptions are often associated with renal and cardiac inadequacy, and, though usually of little practical importance, sometimes assume a grave character and react unfavourably or even dangerously on the patient's general condition. The eruption generally shows itself within a week of the commencement of administration of the drug, but the interval varies according to dose and individual susceptibility. After it has subsided one small dose may suffice to bring it out again in a very few hours. According to some observers the salts of iodine vary somewhat in their power of producing skin eruptions, the iodide of ammonium being the most, and iodide of sodium the least, active in this direction.

In the early stages the papular form of iodic eruption may simulate small-pox, and the resemblance is intensified by the umbilication which occurs when the papules develop into vesicles. The absence of severe constitutional symptoms, however, and the rapid disappearance of the eruption on discontinuing the drug, will quickly clear up any doubt that may

* *Illust. Med. News*, November 17th, 1888.

exist. In some cases iodic eruptions may simulate acne or varicella, but here again the coincidence of the skin lesions with the administration of the drug, their aggravation by increase of the dose, and their disappearance on suspending the treatment, will prevent any misapprehension as to their nature.

Rupial and other forms of iodide eruption may be mistaken for syphilitic lesions, and, in the words of Morrow, "iodide of potassium may be continued, possibly in increasing doses, for the very condition which it has caused."

On comparing the eruptions caused by bromides with those caused by iodides it will be seen that the essential lesion in each is a dermatitis showing a tendency to localisation about the sebaceous glands. In each the eruption may take the form of papules, pustules, vesicles, bullæ, nodules, and almost every variety of combination of these elementary lesions. These often coalesce, and large swellings with crusts, warty excrescences, and ulcers may result. The bromide eruptions are, as a rule, slower in their development and less painful than those caused by the iodides. Moreover, the latter are usually smaller than the former, and confluence is less frequently observed. In the case of both bromide and iodide eruptions the parts chiefly affected are the face and limbs, especially around hair follicles.

Iodoform.—The use of iodoform in surgical dressings sometimes causes irritation of the skin. This is, in the majority of cases, accompanied by greater or less constitutional disturbance. The rash is generally erythematous in character, papules, vesicles, and even bullæ not infrequently developing on the inflamed surface. Sometimes the eruption rather approximates to the eczematous type. Purpuric lesions have in rare cases been observed in connection with the application of iodoform. In

cases where idiosyncrasy in relation to the drug is pronounced, intense itching, with rise of temperature and swelling of the hands, arms, and face, may be caused by simple contact, as in dressing a wound with an iodoform bandage (Morrow).

Arsenic.—Arsenic, when applied to the skin, acts as an irritant, causing dermatitis; used in a concentrated form, and for a long period, it is a caustic. The irritant effects are usually seen after the use of the drug in lotions for the complexion, in dusting powders for children, and in various industrial products—notably, artificial flowers, green wall-papers, certain aniline dyes (in stockings, under-vests, etc.). The resulting lesion is at first erythematous in character, and on this vesicles and pustules often develop, and sometimes, especially about the scrotum and pudenda, small, shallow, clean-cut ulcers may result. When given internally, arsenic may cause exacerbation of acute inflammatory disorders of the skin. When no previous cutaneous affection exists, the internal administration of the drug may cause dermatitis, with papular, vesicular, urticarial, petechial, and pustular lesions; boils and carbuncles are also sometimes observed. A general scarlatiniform eruption, with inflammation of the conjunctiva and mucous membrane of the respiratory passages (leading in the nose not infrequently to ulceration and perforation of the septum), has sometimes been observed. A common effect of arsenic on the skin is the production of a peculiar greyish or brownish discoloration, with desquamation in various parts. The prolonged administration of the drug also sometimes gives rise to general thickening of the epidermis on the palms and soles,* and occasionally to the formation of small corns;

* For a remarkable example of this effect of arsenic, see "A case of Keratosis of the Palms and Soles," by Pringle, in the *Brit. Journ. of Dermatology*, 1891, p. 390. It is possible that

if the drug is persevered with, these corns may in time assume an epitheliomatous character (Hutchinson). It is well known that arsenic has a tendency in some cases to produce peripheral neuritis, and this fact probably explains the occurrence of zoster and other forms of herpes in association with treatment by arsenic.

Chloral.—Chloral hydrate acts as an irritant when applied to the skin, and Ritter * thinks it superior in some ways to cantharides as a vesicant. When given internally it occasionally causes a diffuse erythematous eruption on the skin; this generally begins on the face, and may spread to the neck and chest, and may also affect the extremities. An erysipelatous-looking flushing of the head and face is one of the commonest forms of chloral rash. On other parts of the body the eruption sometimes occurs in patches or scattered dusky red spots, giving the skin a mottled appearance (Morrow). The rash comes out as a rule within ten days of the commencement of administration, is unattended with constitutional disturbance, and quickly fades. The taking of food and the drinking of tea, and especially of alcohol, has a marked effect in intensifying and extending the eruption, and, even when chloral is no longer being taken, the rash may for some days come out after each meal. In some cases it is distinctly scarlatiniform in character, and may spread over the entire surface of the skin. This condition is often accompanied by fever and is followed by desquamation. Papular, urticarial, vesicular and petechial eruptions have also been described as occurring in connection with the taking of chloral. The mucous

some of the cases in which keratosis of the palms and soles has seemed to follow lichen (see Brooke, *Brit. Journ. of Dermatology*, 1891, p. 19) may have been of arsenical origin.

* Quoted by Morrow. Op. cit.

membranes may be affected as well as the skin. Chloral rash bears a close resemblance to that produced by copaiba, belladonna, and quinine. The characteristic odour of copaiba is, however, absent, while the throat is not affected as in the case of belladonna; the absence of the mydriasis, which is so characteristic an effect of the latter drug, is another point of distinction. From quinine eruption the skin lesions caused by chloral can be distinguished by the marked effect which a full meal or alcohol almost always has on the latter. From measles and scarlatina chloral eruption is differentiated by the absence of coryza and sore-throat respectively.

Copaiba and cubebs.—These drugs cause eruptions on the skin that vary in character, the erythematous and papular forms, however, predominating. The lesions are generally seen around the wrists, ankles, and knees; often on the hands and feet, breast, and abdomen; sometimes they spread over the whole body. The most characteristic effect of copaiba on the skin is the so-called "balsamic erythema," which consists of small discrete erythematous papules, apparently seated at the follicles, and sometimes agminated into patches. These patches may also become confluent. Vesicular, urticarial, bullous, and petechial forms also occur, and the eruption may simulate erythema multiforme. The copaiba rash might possibly, from its appearance, be mistaken for erythematous syphilide, or for the exanthem of an eruptive fever, especially rötheln, when the papular element predominates. The characteristic violet-like odour of the drug will, in the majority of cases, prevent such an error; but it must be remembered that the balsamic eruption and erythematous syphilide occasionally coexist.

Belladonna.—The rash caused by the use (external or internal) of belladonna or atropine is

generally erythematous in type; it is, as a rule, diffuse and closely resembles the exanthem of scarlet fever. The face, neck, and trunk are the usual seats of the eruption, and a stinging or pricking sensation in the affected skin is commonly complained of. The rash quickly disappears and is not followed by desquamation. Children with fine skins are particularly subject to eruptions from the use of belladonna. In ophthalmological practice the use of atropine is sometimes followed by severe dermatitis resembling erysipelas.

Mercury.—The irritation of the skin caused by the external use of mercury varies, according to the strength of the application and the length of time contact is prolonged, from slight erythema to severe dermatitis, which may run on to ulceration and sloughing. The most common lesion is erythematous redness with the formation of vesicles, especially around the hair follicles; these vesicles often develop into pustules. Such eruptions have been very common since corrosive sublimate became fashionable among surgeons as an antiseptic. Certain widely advertised preparations for the removal of pimples, etc., from the face contain corrosive sublimate, and serious effects, local and general, have been known to follow the use of them. When taken internally, mercury may produce almost any kind of skin lesion, and the effect of the drug may simulate urticaria, herpes, impetigo, or furuncle; sometimes it produces extensive ulceration. In the majority of cases, however, the eruption is erythematous or scarlatiniform in type; desquamation sometimes follows. The skin lesions caused by the internal use of mercury are not infrequently, however, polymorphic. The eruption is often preceded by itching and dryness of the skin, and in severe cases it is ushered in by constitutional disorder. The symptoms often come on quite suddenly, not

infrequently after a single dose of the drug. The malaise generally ceases on the appearance of the eruption. The visceral and other symptoms of mercurialism (stomatitis, etc.) are frequent accompaniments of the skin eruption. The average duration of the latter is from one to three weeks; but the condition may persist for six months or more. The diagnosis is not always easy; measles and the other exanthematous fevers have to be excluded, and all other possible sources of drug eruption have also to be eliminated. When the affection is severe the prognosis is often serious.

Opium. — The intolerable itching sometimes caused by opium was known to Dioscorides and other ancient writers, who speak of it as *pruritus opii*. The eruption caused by it is mostly scarlatiniform in character; sometimes it is morbilliform, consisting of small discrete spots, bright or dusky red in colour. The face, neck, and flexor surfaces are the usual seats of the eruption, the appearance of which is generally preceded by local heat and itching. The rash may involve the whole cutaneous surface, making the patient "as red as a lobster." Desquamation is the rule. The rash quickly disappears on discontinuing the drug; but in those susceptible in this way to the influence of opium an eruption is almost certain to follow the administration of it in any form. Similar effects often result from the internal or subcutaneous administration of morphia. The latter is also apt to cause local inflammation and abscesses in the skin, unless proper antiseptic precautions are employed; these may lead to the formation of very obstinate ulcers.

Quinine.—Quinine, and all preparations of cinchona, may give rise to skin eruptions. Externally applied, it is not an irritant to the healthy skin; but workers in quinine factories are subject to eruptions which are no doubt due to absorption of the drug.

These lesions are mostly eczematous in character, and generally come on suddenly; the parts chiefly affected are the hands and fore-arms, thighs and genitals. Lichenoid and urticarial eruptions have been seen to follow the application of ointments or solutions containing sulphate of quinine. The hypodermic use of the drug is sometimes followed by widespread erythema, abscesses at the sites of injection, and ulceration. When given internally it causes skin lesions of the most various types. The erythematous form predominates; but macules, papules, vesicles, bullæ, pustules, wheals, and petechiæ are not uncommon. On analysing sixty cases of quinine eruption, published during a period of ten years, Morrow* found that in thirty-eight the general character of the eruption was erythematous ("scarlatinal," "measly," etc.); in twelve it was urticarial, with "œdema," "puffiness of the face," etc.; in a few cases it was papular and vesicular or petechial. Bullous and gangrenous forms of quinine eruption have also been described. In diagnosis, the chief source of possible confusion is the close resemblance of the rash to that of scarlatina in many cases—a likeness which is made all the greater by the fact that the quinine eruption may affect the mucous membrane of the throat as well as the skin. Usually, however, the quinine eruption is not accompanied by fever; but sometimes there is considerable constitutional disturbance. The subsidence of the eruption on discontinuing the drug, and the presence of the latter in the urine, are the points of distinction.

Salicylic acid, salicylate of soda.—Externally applied, salicylic acid is more irritating than carbolic acid, even a 2 per cent. solution causing the appearance of irritable vesicles in the neighbourhood of wounds (Callender). The internal use both of

* *New York Med. Journ.*, March, 1880.

salicylic acid and of salicylate of soda sometimes gives rise to erythematous, urticarial, vesicular, pemphigoid, and petechial lesions on the skin. The erythematous lesions resemble those caused by antipyrin, chloral, etc., and their appearance is generally accompanied by some febrile disturbance. Sometimes the rash closely resembles that of scarlet fever, and as it is occasionally accompanied by sore throat and systemic disturbance, it may be difficult to distinguish the one condition from the other. In some cases the administration of the drug is followed by the appearance of a morbilliform rash.

A summary of the eruptions caused by other drugs in common use will be found in the table here appended :—

Aconite	*Externally applied :* Redness, itching vesicles, erysipelatoid inflammation. *Internally administered :* Vesicular eruption with formication and itching; sometimes pustules and blebs.
Antifebrin	*Internally administered :* Slate-coloured cyanosis.
Antimony	*Externally applied :* Varioloid eruption : sometimes ecthymatous ulcers and extensive destruction of tissue. *Internally administered :* Vesiculo-pustular and urticarial eruptions; sometimes varioloid eruption like that produced by external application.
Antipyrin	*Internally administered :* Erythematous eruption, with profuse sweating and great itching, on chest, abdomen, back, sometimes on limbs, especially flexor surfaces. Rash usually described as "measly."
Argenti nitras	*Internally administered :* Peculiar bluish-grey or greyish-black discoloration of skin, somewhat resembling Addison's disease, especially on face and flexor aspects of limbs (argyria). Erythematous and papular eruption with pruritus.

Arnica	*Externally applied:* Erythemato-vesicular eruption resembling that caused by "poison oak;" often eczematous; sometimes erysipelatous dermatitis. *Internally administered:* Erythema with formication; diaphoresis.
Balsam of Peru	*Externally applied:* Erythematous, eczematous, and urticarial eruptions.
Boracic acid Borate of sodium	*Externally applied:* Erythematous rash on face, trunk, and extremities (after washing out pleura); impetigo after long use of borax. Sometimes burning and charring of skin. *Internally administered:* Eruption like psoriasis (Gowers).
Cade oil	*Externally applied:* Erythematous eruption, which may spread over large area; erysipelatoid dermatitis; papular eruption, like "tar acne" on hairy parts (*Sycosis cadique* of Bazin).
Cannabis indica	*Internally administered:* Papulo-vesicular eruption on scalp, face, neck, trunk, and limbs. Only one case on record (Hyde). In poisoning by the drug, œdema of face.
Cantharides	*Externally applied:* Vesicant; skin around blister may become covered with vesicles, which are often confluent; eruption sometimes assumes eczematous character, and extends over whole body. In persons of feeble constitution ulceration and gangrene may follow application.
Carbolic acid	*Externally applied:* Erythema up to complete destruction of tissues, according to strength of preparation. Rash often accompanied by toxic effects (headache, vomiting, oliguria, and dark urine).
Chrysarobin Chrysophanic acid	*Externally applied:* Hyperæmia with prune-juice discoloration of skin; erythematous, papular, pustular, and furuncular eruption. Erysipelas-like swelling of head and face. Exfoliative dermatitis.

Croton oil	*Externally applied:* Erythematous, papular, vesicular, pustular eruptions. Sometimes secondary eruptions appear on distant parts (from absorption?).
Ergot	*Hypodermically given:* Painful black swelling at site of puncture, phlegmonous inflammation round it. *Internally administered:* Vesicular, pustular, petechial, furuncular lesions, sphacelus, gangrene of extremities (ergotism).
Iron	*Internally administered:* Acneiform eruption on face, breast, and neck. *Iodide of iron* causes erythematous, papular, urticarial, eczematous lesions (probably chiefly from iodine contained in it).
Lead (acetate and carbonate)	*Externally applied:* Blackish or brownish discoloration. *Internally administered:* Erythematous rash; petechiæ.
Nux vomica: strychnia	*Internally administered:* Pruritus and formication. Miliary or scarlatiniform eruption.
Phenacetin	*Internally administered:* Great heat and erythematous eruption on face.
Pix liquida (tar)	*Externally applied:* Erythematous, papular, vesicular, pustular eruptions. Tar acne consisting of small hard red nodules, distinguishable from ordinary acne by black tarry points in centre of each papule; they persist long after the application, and may require three or four weeks for their complete involution. Erythema papulatum and violent dermatitis may follow the application of a pitch-plaster. *Internally administered:* Copious red rash with fever, nausea, etc.; erythematous, rubeoloid, urticarial lesions.
Podophyllin	*Externally applied:* (in workmen who pulverise it) irritant, especially on scrotum and genitals.

Stramonium	*Internally administered:* Eruption like that produced by belladonna, but less vivid in colour; numbers of small brilliant petechiæ on face (Meigs); erysipelatoid inflammation.
Sulphonal	*Internally administered:* Diffuse scarlatiniform eruption with intense itching; generalised macular erythema.
Sulphur	*Externally applied:* Redness, papules, painful vesicles (often confluent); artificial eczema. Papular and vesicular eruption common in those taking sulphur thermal baths. *Internally administered:* Dark discoloration of skin; eczematous eruption, boils, carbuncles.
Terebene Turpentine	*Externally applied:* Turpentine causes extensive redness, vesicles, and inflammatory lesions. Very persistent and intractable. *Internally administered:* *Turpentine* may cause erythema of wine-red hue on face and upper part of trunk; profuse papulo-vesicular eruption; sometimes eruption becomes eczematous in character. *Terebene* may cause bright red papular rash.

Eruptions are occasionally caused by bitter almond, calcium sulphide, capsicum, chinolin, conium, hyoscyamus, ipecacuanha, cod-liver oil, castor oil, phosphorus, santonin, tannin, and veratrum viride; but these are so rare that they are of little practical importance. For full information on drug eruptions the reader is referred to Prince Morrow's work on the subject, edited for the Sydenham Society by Colcott Fox, who has enriched the text with copious notes, which add greatly to the value of the book. A very full bibliography of the literature of the subject is given at the end.

Inoculation Rashes.

This seems to be the most appropriate place for a brief description of certain eruptions that follow

vaccination and other inoculations performed for a therapeutic purpose. At present our experience of skin eruptions due to this cause—apart from vaccination—is very scanty; but as the current of therapeutical opinion appears to be setting strongly in the direction of injections of organic liquids (Brown-Séquard's testicular extract, Constantin Paul's "nervous transfusion," thyroid juice, etc.), it will probably soon be considerably extended.

Vaccination eruptions.—From the etiological standpoint, I some years ago suggested * the division of vaccination eruptions into two principal groups:—

1. Eruptions due to pure vaccine inoculation.
2. Eruptions due to mixed inoculation—that is to say, to vaccine, together with an additional virus.

The following classification of vaccination eruptions under these two headings appears to me to include every kind of eruption traceable to that source:—

Group 1.—Eruptions due to pure vaccine inoculation:

Division A. Secondary local inoculation of vaccine.

B. Eruptions following within the first three days before the development of vesicles.
Urticaria.
Erythema multiforme.
Vesicular and bullous eruptions.

C. Eruptions following after development of vesicles due to absorption of virus.

1. { Roseola—like measles.
Erythema—like scarlet fever.
Purpura.
2. Generalised vaccinia ("*vaccine generalisée*").

D. Eruptions appearing as sequelæ of vaccination: eczema, psoriasis, urticaria, etc.

* *British Medical Journal*, November 29th, 1890, p. 1229 *et seq.*

Group 2.—Eruptions due to mixed inoculation :

Division A. Introduced at time of vaccination.
Subdivision *a*. Producing local skin disease
Contagious impetigo.
Erythema.
Subdivision *b*. Producing constitutional disease.
Syphilis.
Leprosy?
Tuberculosis?

B. Introduced, not at time of vaccination, but subsequently, through the wound.
1. Erysipelas.
2. Cellulitis.
3. Furunculosis.
4. Gangrene.
5. Pyæmia.

There is one vital point of difference between the eruptions in these two groups respectively. Those belonging to Group 1, depending, as they do, for the most part on idiosyncrasy, are practically unavoidable. On the other hand, those in Group 2 are preventible, by using only pure vaccine lymph with the strictest antiseptic precautions.

The eruptions belonging to Division A of Group 2 may be local lesions, or manifestations of constitutional disease. To the former category belongs contagious impetigo, which can be inoculated with the vaccine virus, become developed in the vesicles, and spread by auto-inoculation to all parts of the skin. Another local manifestation is a dermatitis or erythema, which starts from the areola and spreads over a limited area, passing imperceptibly into healthy skin. This is often spoken of as true erysipelas, but as it never extends to other parts of the skin it is in reality only a local dermatitis.

As regards constitutional disease, Hutchinson has proved that syphilis may be transmitted by vaccination ; but judging from the rarity of vaccinal syphilis

as compared with the inherited form of the disease, it seems probable that, if pure lymph is used, syphilis cannot be transmitted before the eruptive period. That leprosy may be transmitted by vaccination is inherently probable from the fact that the disease is inoculable. That it *has* actually been so transmitted there is extremely little decisive evidence to show. I know of only two published cases of the kind which will bear examination. Both of these were recorded by Daubler.* It is extremely doubtful if tuberculosis has ever been transmitted by vaccination. Passing to Division B of Group 2, true erysipelas occasionally occurs. It is distinguished from the local dermatitis above referred to by its characteristic margin, swelling and tension of the skin, high fever and general constitutional disturbance, and by the rapidity with which it spreads over the limbs and the body. Cellulitis is extremely rare. Boils are occasionally seen after the eighth day, not only near the pustules, but on other parts of the body. Gangrene has in rare cases attacked the vaccine vesicles, causing extensive sloughing, and in one instance a general vaccinia is said to have become gangrenous (Hutchinson). Pyæmia is extremely rare; it is caused by the introduction of pus cocci into the wound.†

Tuberculin eruption.—The injection of tuberculin sometimes gives rise to a diffuse scarlatiniform or morbilliform eruption. The lesions are generally situated about the hair follicles, but small erythematous patches are sometimes scattered about the trunk. The eruption, as a rule, recurs after each

* "Ueber Lepra und deren Contagiosität;" *Monatshefte für prakt. Derm.*, Feb. 1, 1889, p. 123.

† For further information on vaccinal eruptions the reader is referred to my paper on the subject read at the meeting of the British Medical Association in 1890, and to the discussion which followed it (*Brit. Med. Journ.*, Nov. 29, 1890).

injection. It is sometimes followed by slight desquamation.

Antitoxin eruption.—Barth reports a case in which injections of tetanus antitoxin of Tizzoni and Cattani, as a remedy for tetanus, caused an urticarial eruption which lasted thirty-six hours.

Treatment.—In the majority of cases the only treatment required is to discontinue the use of the drug that causes the skin lesions; *cessante causâ cessat effectus.* In some cases, however, the artificial eruption may be so severe in itself, or may be attended with complications of such a nature, that both general and local treatment will be required. The chief indication in most cases after discontinuance of the drug is to stimulate the renal function so as to promote elimination by that channel. Diuretics should therefore be freely used, and drugs such as iodide of potassium, the use of which sometimes cannot be interrupted without disadvantage to the patient, should be given copiously diluted in Vichy, soda or barley water, milk, etc. A saline purge is also generally useful. Bromide eruptions should be treated with arsenic internally (℥iij to ℥v of Fowler's solution thrice daily) and by the application of lead lotion. If the drug must be persevered with (as in the case of epilepsy) a drop or two of Fowler's solution added to each dose of the bromide will often prevent the skin affection. Crocker suggests salol (gr. v thrice daily) as an intestinal antiseptic. The same lines of treatment should be followed in the case of iodide eruptions. The local treatment must be conducted on general principles. Persons whose occupation brings them constantly in contact with irritant substances must be advised to change their trade; but this, of course, is in many cases out of the question, and the only measure of precaution that can be recommended is scrupulous cleanliness and care to avoid touching

any unexposed part of the skin with hands or articles of clothing impregnated with the offending substance. It should be borne in mind that stimulants often appear to increase the tendency to drug eruptions and to aggravate them when already existent. This is particularly the case with chloral.

CHAPTER X.

ECZEMA.

In no subject within the province of dermatology has the loose use of a term given rise to more confusion than in the description of the various affections of the skin which have, at one time or another, been grouped together under the head of "eczema." Willan and Bateman restricted the name to a process in which vesicles were an essential lesion. The meaning of the term was afterwards expanded, especially by French observers, so as to include nearly all the skin lesions that were supposed to stand in relation to a constitutional dyscrasia, such as gout, rheumatism, or "herpetism," that pathological phantom which is held accountable for such varied disturbances. On the other hand, Hebra, and after him the Vienna school, went to the opposite extreme, contending that eczema is a purely local disease, which can be artificially excited by the use of external irritants; that, in fact, the process is simply superficial inflammation of the skin dependent on some external cause. Hebra, it is true, admitted that constitutional conditions might predispose to the affection, but so strongly did he maintain the determining cause to be a local irritation that he included itch in his definition of eczema on the ground that it is an inflammatory process caused by a local irritant—that is to say, the acarus scabiei. It is clear, then, that in order to avoid confusion it is necessary in the first place to define the sense in which the term "eczema" is to be employed, and in the second to adhere strictly to the meaning thus attached to it. In the present work the term "eczema" is used as connoting *a catarrhal inflammation of*

the skin, originating without visible external irritation, and characterised in some stage of its evolution by serous exudation. By "catarrhal" all that is here meant is that an essential feature in the process is an exudation of serum, either on the surface of the inflamed skin or into its deeper parts, where the horny layer prevents the fluid from escaping. Although eczema is essentially a catarrhal disorder, and the idea of moisture is an integral part of our conception of the disease, it does not follow that discharge must always and in all cases be present; all that is implied is that exudation, either on the surface or into the deeper layers of the skin, is, has been, or will be a prominent feature in any given case. The definition of eczema given above excludes all forms of inflammation of the skin caused by chemical or mechanical irritants. The artificial dermatitis set up by such agents is identical anatomically with the eczematous process, and gives rise to lesions indistinguishable from those of eczema, but it is not eczema. The source of irritation is visible, and can be applied or withdrawn at will; the lesions are distributed over what may be called the area of exposure, and their severity is mostly proportionate to the strength of the irritant or the length of time it is applied. Moreover, artificial eczema runs a definite course, and the process is always under the patient's own control—to this extent at least, that he can at any time interrupt the action of the irritant, when as a rule the eruption at once begins to subside. All the phenomena can be reproduced in any part of the cutaneous surface to which the irritant is applied, and although, owing to structural differences, the skin of different individuals varies greatly in vulnerability, and the patient's state of health may have some influence on the severity or duration of the process, the constitution has nothing to do with the development of the disease.

Eczema, on the other hand, arises to all appearance spontaneously—that is to say, not in response to any visible cause of irritation; its distribution has no relation to exposure to the action of external irritants; it is not confined to one particular spot, nor even to one region of the body, but may affect all in succession or simultaneously. Lastly, it does not run a definite course, but may smoulder on for long periods of time, breaking out at irregular intervals into active conflagration without any assignable cause. It may be added that, so far from being under the control of the patient, it too often defies all the efforts of the physician. It is evident, therefore, that there is something more in eczema than inflammation of the skin due to a local and transient cause; there is an unknown quantity beyond this—a pathological *x*, which may be either some invisible source of irritation or some constitutional peculiarity, or a combination of both these factors.

Most recent writers follow Erasmus Wilson* in describing a number of different forms of eczema—erythematous, vesicular, papular, pustular, squamous, etc. All these, however, are but different stages of the same process, and there is no advantage in considering them separately, although the terms are sometimes of use in practice to indicate the predominant type of lesion in a given case or at a particular time. Eczema is essentially a polymorphous affection, and there is no particular lesion which can be regarded as distinctive of the disease. Tilbury Fox,† following Willan, held that in all cases the initial lesion was a vesicle, though this might not infrequently be so small or so evanescent as to escape observation. Colcott Fox adheres to the same opinion. Though the vesicular stage is not a necessary phase in

* "Lectures on Dermatology." London, 1871.
† "Skin Diseases." London, 1873.

the evolution of eczema, it may be admitted that the vesicle is the most constant of all the primary lesions by which the disease manifests itself.

As no two cases of eczema are exactly alike, and as even in the same case there may be the utmost diversity, not only in the lesions, but in the symptoms which they produce in different parts and at different times, it is impossible to give a complete clinical picture of the disease in all its varied aspects as met with in practice. All that can be attempted here is an outline sketch, the details of which must be filled in by each practitioner for himself as his knowledge grows by experience. It will add to the clearness of the following description if it be premised that by the terms "acute" and "chronic" the author does not mean to indicate suddenness of onset or slowness of course, but only *greater or less intensity of the inflammatory process at a given time.*

An attack of eczema is generally ushered in by sensations of itching and burning in some parts of the cutaneous surface. Soon the skin at these spots becomes the seat of an erythematous blush, on which numerous tiny vesicles speedily form; the affected part presents the classical signs of inflammation—swelling, heat, redness, and tension—the itching, as a rule, becoming more troublesome as the lesions develop. The vesicles grow larger and often run together, but they soon burst or are broken by the patient's fingers in scratching, and give issue to a clear fluid which stiffens linen. The discharge does not at once dry up, as is the case in other vesicular eruptions, but continues to exude, more fluid being poured out as vesicles of more recent formation in their turn break and add their contents to the general ooze. In mild cases the inflammation begins to subside in a few days; the redness fades, and the "weeping" gradually ceases, scales or crusts being

formed, under which the abraded surface heals. As a rule, however, the process continues, fresh crops of vesicles starting up around the edge of the older patches, and new centres of disease being formed as the eruption breaks out in distant parts. In this way eczema may in time spread over nearly the whole body.

Sometimes papules are the predominant lesion, and the affection in such a case may simulate lichen. With the help of a lens, however, a minute vesicle can often be seen on the top of each papule. A characteristic appearance in this so-called papular eczema is that, owing to the rupture of the vesicles by scratching, the papules are covered by a tiny dome of blood-crust. The course and symptoms of the affection are as already described, except that the itching is usually more pronounced.

In other cases, again, erythematous lesions may predominate, especially on the face. The affected surface is red but not shiny; it is dry and sometimes covered with small scales. These appearances may gradually fade away or may linger on, the process being now almost quiescent and again starting suddenly into activity for a time. The epidermis is apt to crack, and serous discharge oozes through the broken integument. This is especially likely to occur on surfaces of skin which rub against each other, forming an eczematous variety of intertrigo.

Eczema varies considerably in intensity at different times. As a rule the onset is more or less acute, the affection gradually passing into a more chronic stage as it tends to recovery. Both acute and chronic forms may, however, co-exist—that is to say, while the process is intense at one point it may be quiescent at another, and every intermediate stage may be exhibited in other parts. Sometimes the affection begins in a trivial chronic lesion. Thus a red scaly

patch that may have existed on the leg for years may suddenly wake up into activity, causing intense irritation, and exhibiting all the phenomena of acute eczema. Again, in cases in which an old-standing eczema has subsided, leaving only a small patch apparently dying out, this may at some subsequent time form a focus for a fresh development of the disease, from which it may spread over nearly the whole body.

The worst forms of eczema are ordinarily accompanied by some constitutional disturbance, not amounting to fever, in the earlier stages, and the same thing occurs at each fresh exacerbation of the process. The general health, however, is seldom appreciably affected, except when the itching is so intense as to make sleep impossible; but the attacks seldom follow each other so closely as to leave no intervals during which the patient can make up arrears of rest. So slight is the effect of eczema on the system that in the most intense form of the generalised disease, when the discharge is so profuse as to glue the hair to the pillow and the linen to the body, and when the itching is maddening and almost continuous, fresh outbreaks occurring every few hours, there may be no rise of temperature, the tongue may be quite clean, and every function in perfect working order; in short, with the exception of nervous excitement, there may be absolutely no disorder of the general health. The itching and heat are often out of all proportion to the visible changes in the skin, and these symptoms are usually intensified to an extreme degree at night, especially in the earlier hours. I have often seen strong men literally crying on account of the irritation and discomfort which they experienced when there was nothing particular to see in the skin. Even persons of the strongest will are not able to control themselves, and scratch as if by tearing their skin

they could root out the cause of the irritation. They will tell you that they experience a sort of savage satisfaction in tearing their skin till the blood comes, and as a matter of fact the pain of the severe excoriation caused by their nails seems for a time to subdue the intolerable itching. A feeling of mental calm follows the nerve storm caused by the irritation, and the patient is able to sleep. In severe cases mental excitement is often very pronounced, especially in persons of neurotic temperament.

In the great majority of cases of eczema the following stages are more or less distinctly recognisable:—(1) An initial *erythema*, the affected surface presenting the usual signs of inflammation, and generally soon becoming studded with vesicles; (2) *exudation* of a clear serous fluid, which stiffens linen, the surface being red and "weeping," and often excoriated by scratching; (3) *crustation*, the discharge "setting" into greyish-yellow crusts of varying thickness, which, as they become detached, are succeeded by others as long as the oozing continues; (4) a *dry stage*, during which no further formation of crusts takes place, and the surface is covered with a thin, red, glistening epidermis, dotted with small points of a deeper red tint; (5) lastly, *desquamation*, the new epidermis being shed in scales, which gradually become smaller and thinner till nothing remains to mark the site of the lesions but a brownish stain. All these stages are usually present at once in a given case, and this, combined with the modifications of the lesions in different circumstances about to be described, together with the accidental complications produced by scratching, and by inoculation of pus cocci (pustules, boils), gives eczema the multiformity of aspect which has been mentioned as one of its most striking characteristics. The process always begins with more or less violent inflammation—in other

words, there is, in all cases, an "acute" initial stage, though sometimes this is so brief in duration that the disease might easily be thought to have been of the "chronic" type from the first. It may run through all the various phases that have been described, or it may abort at any stage, without in either case leaving permanent changes in the part attacked. On the other hand, it may be indefinitely prolonged, though in an almost dormant state, leading to thickening and other results of slow persistent inflammation. Even in the oldest of such patches, however, the disease may start into activity at any time and without any visible provocation. Eczema may, in fact, as regards the vicissitudes and the varying degrees of intensity of the process, be compared with inflammation of a joint. First there is the period of onset, the heat, pain and tension in the joint having their analogues in the heat, swelling and itching of the skin; next comes effusion into the joint, corresponding to the "weeping" stage of eczema; lastly, absorption of fluid in the one case and drying up of the discharge in the other, followed by more or less complete restoration of the *status quo ante*. Again, there is in the joint, as in the skin, the liability to sudden exacerbation of the inflammatory process even after long quiescence, and the tendency to structural changes after long persistence or frequently repeated attacks.

In certain cases in which the disease has been exceptionally severe and protracted the process may become transformed into that form of generalised malignant inflammation known as mycosis fungoides. I have a case at present under my care in which this has taken place. There is reason to believe that other forms of malignant disease may supervene on eczema.

Modifying Influences.

While the eczematous process is always essentially the same, its manifestations in individual cases are more or less modified by special conditions of structure or situation in the affected parts of the skin and the age and sex of the patient. These various factors will be considered separately.

Distribution and regional peculiarities.—There is no part of the skin which may not be attacked by eczema, but there are certain regions for which it exhibits a more or less marked predilection, and in which it usually begins. These are the flexor surfaces of joints—the bends of the elbows, the backs of the knees, and the groins; other favourite situations are the groove behind the ears, the scalp, the palms and the soles, the breasts in women, the lumbar region, and the back at the level of the lower angles of the scapulæ. On the limbs eczema sometimes gives rise to considerable infiltration and induration; hence deep, painful cracks are apt to be formed on the flexor surfaces when the inflamed skin is subject to frequent movements. The eruption is generally symmetrical.

On the front of the *legs and arms*, and occasionally on the flexor surfaces of joints, the disease assumes a peculiar form, which, from the uniform redness of the part attacked, has been dignified with a special name —*eczema rubrum*. The affected area is of a bright red colour and glistens with moisture, beads of exuded fluid standing on the surface like dewdrops—hence the term "madidans" sometimes used to denote this form of eczema. The discharge quickly dries, forming extremely thin scabs like flaky pie-crust or goldbeater's skin; these, when torn off, reveal a wet, raw, tender surface beneath. Sometimes, especially in parts where the skin is more or less tightly stretched, as on the front of the leg and the

fore-arm, the exudation cannot force its way to the surface, and the skin is dry, but very tense and red. When the inflammation is of a slight degree of intensity the patches are often covered with scurf, which is easily detached, exposing a dull red surface which is not raw, nor tender. As a rule no constitutional disturbance accompanies eczema rubrum, unless a very large area of skin be involved, when the condition approximates to pityriasis rubra.

On the *scalp* eczema is generally of the seborrhœic form. Another form is, however, met with which seems to be unconnected with seborrhœa. The scalp is red and covered with crusts, but the hair does not fall out. In children, and also in adults, the affection is sometimes associated with pediculi, and in such cases pustules are almost sure to be produced by inoculation with the patient's finger-nails.

About the *nostrils* eczema is often accompanied by coryza of an irritating character, complicated at times by painful boils. The disease may attack the nasal fossæ, where it may cause considerable œdema. Eczema, in this situation, sometimes leads to catarrh of the naso-pharynx and so to catarrh of the middle ear (Gruber). The *upper lip* may suffer in consequence of the nasal discharge trickling over it. The special features are great swelling and redness of the part of the lip lying below the nostrils, with painful pimples about the orifices of the hair follicles, and almost unbearable itching; crusts form, and a good deal of thickening of the lip, causing deformity and even obstruction of the nostrils, may be left. A particularly painful form of eczema may attack both upper and lower lips, which swell and discharge, and sometimes become so stiffened under a carapace of crusts that the patient can hardly move his lips without cracking the integument.

The *ear* is a favourite point of attack for eczema,

which often lingers there when it has disappeared from other parts, and invades neighbouring regions from it as from a centre, when kindled into fresh activity. Sometimes the whole external ear is involved (Plate IV. Fig. 2), the disease occasionally even spreading along the meatus to the membrana tympani; in other cases the lesions are confined to the groove behind the ear (Plate IV. Fig. 1).

On the *face* eczema is usually of the seborrhœic form, and is, as a rule, the result of the extension of the process from the scalp.

Eczema of the *chin* is often confounded with sycosis, from which, however, it is distinguished by the absence of indurated nodules and cicatricial alopecia (Brocq).

On the *wrists* the dorsal surface is the usual seat of the disease, the irritation being kept up by the chafing of the cuffs. On the *feet* the spaces between the toes most frequently suffer. On the palms and soles the most common effect of eczema is great thickening of the epidermis, which impairs the flexibility of the parts and leads to the formation of cracks (E. rimosum), making the use of the feet and hands so difficult and painful as to disable the patient for active life. The *nails* are discoloured and undergo degenerative changes. The first sign of the affection is usually pitting, which gives them an appearance somewhat resembling the rind of an orange. They become thin, split transversely and longitudinally, and exfoliate; in old-standing cases they sometimes become thickened to the extent of deformity (Plate III. Fig. 2).

Eczema may attack the *nipple*, especially in nursing mothers; but this part may also be the seat of the affection in unmarried women and even in men. It begins in seborrhœa of the nipple and the areola, and presents the ordinary characters of seborrhœic

eczema. Cracked nipple is a frequent result. The affection is generally symmetrical. It is not to be regarded as the first stage of Paget's disease; it is innocent in character, though often extremely obstinate.

On the *genitals* eczema is chiefly of the erythematous form, and it is naturally worst where two surfaces of skin rub against each other. The irritation is excessive, and the temptation to scratch more difficult to withstand than in almost any other situation. The scrotum and penis sometimes become greatly swollen, and the disease may spread over the perinæum, round the anus, into the fold between the nates, and over the gluteal region; not infrequently it invades the whole of what may be termed the "bathing-drawers area." In such cases the patient cannot sit down or walk without the crusts and the inflamed skin beneath them giving way somewhere. In the female the state of things is even worse. The process is generally stirred up to a violent degree of intensity by the chafing of the parts; the swelling may be enormous, and almost every variety of lesion that can be produced by acute inflammation aggravated by scratching and urine—foul crusts and scabs, fissures, and disgustingly offensive discharge—may be present, while walking is so painful as to be almost impossible, and the itching is so unendurable that life becomes a burden.

Eczema of the *anus* is often associated with piles or worms; the skin is thickened, and painful fissures are frequently present. The itching is in most cases intense, and the harassing character of the affection gives an anxious and haggard expression to the countenance.

The *umbilicus* is sometimes the seat of an obstinate eczema, usually seborrhœic in form. The lesions are circular in outline and do not, as a rule, extend far beyond the edges of the umbilicus.

Sex.—Although eczema spares neither sex, males

are perhaps, on the whole, more liable to be attacked than females. In childhood, Crocker's statistics show a preponderance of boys to girls of five to three.* In middle age, when the burden of life is heaviest, the greater proclivity of the male sex is still more marked. Bulkley † gives an analysis of 5,000 cases of eczema under his own observation, which shows that in the period from thirty to fifty years of age the number of male patients in his private practice was about double that of females. Hebra's estimate that the proportion of females to males among the subjects of eczema in his clinic was as two to one is probably to be explained by the greater opportunities women have of attending as out-patients at a hospital. There are, however, two periods of life at which women are more liable to eczema than men, viz. between the ages of ten and twenty, when menstruation is becoming established, and again at the menopause.‡ In old age the influence of sex is lost in the degenerative tendencies common to both.

Age.—In *children* eczema is mostly of the seborrhœic form, and in a large proportion of cases it begins in the earliest years of life. As a rule the starting-point is the scalp; thence the disease often spreads to the ears, the forehead, and the face, and downwards, generally in the middle line of the body (front and back), but not sparing the limbs. Vesicles show a much greater tendency to become pustular than in adults, forming on the head moist yellowish crusts which glue the hair together, while from underneath them frequently wells up a sickly-smelling seropurulent discharge. On the face the crusts often

* "Diseases of the Skin," 2nd edition, 1893, p. 118.

† "On the Relation of Eczema to Disturbances of the Nervous System." Reprinted from the Philadelphia *Medical News*, January 31st and February 7th, 1891.

‡ Bohn: *Deutsch. Arch. f. klin. Med.*, October, 1886.

have a dark-green or brownish tint, and cover the face, leaving the mouth, eyes, and nose free, like a mask with an opening cut in the centre (Unna). On the trunk, where the exudation is usually less abundant, thin scales are more common than crusts. Itching is sometimes very troublesome, especially where cleanliness is neglected and the lesions caused by the disease are aggravated by pediculi. The lymphatic glands are frequently enlarged, and subcutaneous abscesses, particularly in the suboccipital region, are a not uncommon complication. In babes at the breast the natural folds and creases of the skin—nates, thighs, neck, etc.—are often the seat of eczematous lesions which are often overlooked, mothers and nurses not separating the parts properly for fear of making the child cry. Kaposi * says that in these cases the dermatitis sometimes assumes a very intense character, rapidly becoming gangrenous or diphtheritic, a cure taking place in the most favourable cases with loss of substance and cicatrices, or death ensuing in a few days from convulsions and collapse. I can only say that no case of this kind has ever come within my experience.

According to Brocq,† the rapid disappearance of an eczematous eruption in a young child may be followed by pulmonary congestions of the most dangerous kind.

Unna‡ recognises three absolutely distinct types of eczema of the face in infants—nervous, tubercular, and seborrhœic. The first occurs during dentition. It is symmetrical in distribution, and usually affects the middle of the cheeks, then the forehead, and almost at the same time the radial side of the

* "Maladies de la Peau," tome i. p. 658. French translation, Paris, 1891.

† "Traitement des Maladies de la Peau," p. 169. Paris, 1890.

‡ *Journ. of Cut. and Gen. Urin. Dis.*, Dec., 1887.

backs of both hands and wrists. The itching is intense, and the healthier the child is, the worse this symptom seems to be. On the appearance of a few teeth the eczema dies away, probably to come out again a few days later. The tubercular form is localised in the neighbourhood of the eyes, nose, mouth, or ears, and is often associated with scrofulous rhinitis and otorrhœa, and swelling of lymphatic glands. There is little or no itching. I agree with Crocker * in regarding this as a form of impetigo contagiosa rather than eczema. The seborrhœic form is described at page 224.

In *middle life* eczema presents little peculiarity either in the nature of the lesions or in their distribution. "Weeping" and scaly forms are, however, far more common than the pustular lesions that predominate in infantile eczema. It is at the middle term of life, moreover, that the influence of constitutional conditions, such as gout or rheumatism, is most likely to make itself felt. This they do not so much by exercising any direct effect on the eczematous process as by modifying the general health in a way favourable to the continuance of the skin affection. According to Brocq it is especially in middle life that alternations between eczematous lesions on the skin and "visceral manifestations" of greater or less gravity (pulmonary, renal, intestinal, cardiac, cerebral, etc.) are most likely to show themselves.† In women at the change of life eczema shows a marked tendency to relapse in particular regions. According to Jamieson,‡ more than three-fourths of the cases occur on the scalp and ears. The extremities may also suffer to some extent, but the trunk generally escapes.

Elderly persons are particularly apt to suffer from

* "Diseases of the Skin," 2nd edition, p. 119.
† Op. cit., p. 169.
‡ "Diseases of the Skin," p. 258. Edinburgh, 1888.

a form of eczema which is really an expression of enfeebled vitality or the result of degenerative changes in the skin. The favourite situation of the disease in such cases is the lower part of the leg, where it is frequently associated with varicose veins and ulcers. In the milder forms the skin is only slightly roughened and red, the surface being covered with a thin film of scales; in severe cases there is often great thickening of the skin accompanied by distressing itching. When the skin is very dry and atrophic, as it usually is in persons of advanced age, it is apt to crack along the lines of cleavage, causing great pain on movement. In old men eczema not infrequently spreads from an old, almost forgotten patch, commonly on the leg, involving wide areas and developing fresh centres in distant parts, till nearly the whole surface of the body may be invaded. The erythematous form already mentioned, which attacks the face and neck, is common in elderly people.

Special Forms of Eczema.

The general phenomena of the eczematous process having been described, certain variations in the clinical aspect and course of the affection, depending on differences in its mode of origin, remain to be considered. By the terms of the definition of eczema given at the beginning of this chapter, all forms of inflammation of the skin due to definite chemical or mechanical irritation were excluded. But even in the restricted sense in which it is here used, eczema is still rather a pathological formula expressing the results of several forms of morbid action than a distinct disease. The nature of eczema is one of the vexed questions of dermatology, and a full discussion of it would be out of place in an elementary text-book. Such a discussion is the less necessary that for all

practical purposes it is sufficient to recognise two kinds of eczema, or, to speak more precisely, two great groups of eczematous eruptions—those which come out to all appearance on previously healthy skin, and those for which the way has been prepared by some pre-existing local disorder of the secreting apparatus of the skin.

Of the latter category there are three special forms according as the source of the mischief is in the sebaceous glands (seborrhœa), the sweat glands (hyperidrosis, anidrosis), or the hair follicles (folliculitis).

Seborrhœic eczema, for our knowledge of which we are indebted to Unna,* begins, as a rule, in seborrhœa of the scalp, which in some cases has existed since birth; in rare instances the starting-point may be the margin of the eyelid, or a part like the axilla, the bend of the elbow, or the cruro-scrotal fold where sweat glands are abundant. In connection with this point it should be noted that, according to Unna, what is usually called "seborrhœa" is often a fatty hypersecretion poured out, not from the sebaceous, but from the sudoriparous glands, and should be regarded as *hydrosis oleosa*.† The affection begins as a latent catarrh; it first manifests itself by the agglutination of epidermic scales which are thrown off in large lamellæ. That there is a faulty distribution of the fat in the skin is shown by the fact that the hair becomes abnormally dry from closing up of the hair follicles, while the epidermis and exfoliating scales are abnormally fatty. The scales may simply

* *Journ. Cutan. and Gen. Urin. Diseases*, December, 1887, p. 449, *et seq.* The paper was a communication to the Dermatological Section of the Ninth International Medical Congress held at Washington.

† Unna's view that the sweat glands secrete fat is not generally accepted. Weighty reasons against it have been adduced by Wallace Beatty (*Brit. Journ. of Dermatology*, April, 1893, p. 97, *et seq.*).

increase in quantity, or they may become massed into fatty crusts between the hairs, which are thus crushed out, leaving a bald patch on the top of the head (*corona seborrhoica*). In other cases the catarrhal phenomena are more pronounced; the skin is red and swollen and "weeps" profusely; the fatty scales either do not form or are washed away by the discharge; and the horny layer, or even the rete, may be laid bare. Unna calls these respectively the *scaly*, the *crusty*, and the *moist* forms of what is generally termed "chronic eczema of the head." The sternal region may also be the seat of a primary seborrhœic eczema, which is almost always of the "crusty" form; the patches are usually made up of segments of circles, and present different shadings of colour, from yellow in the centre to bright red (after removal of the scales) at the outer edge.

Eczema seborrhoicum spreads slowly in a peripheral direction; a patch may remain almost stationary for years. Beginning, as already said, on the head, it extends over the scalp, thence to the ears, the forehead and cheek, the neck, and down the front of the chest and the back, especially in the interscapular furrow, into the axillæ and the bends of the elbows and on the hands, into the groin and the cruro-scrotal fold, over the genitals, behind the knees, and between the toes.

Seborrhœic eczema is nothing more than the eczematous process going through the various phases of its evolution in a skin that has long been the seat of seborrhœa. The latter prepares the ground for the eczema. The discharge itself may possibly have an irritant action on the skin, but the real irritant—the efficient cause of the lesions—is, there is every reason to believe, of parasitic nature. This affords an explanation of the suppurative processes which often complicate seborrhœic eczema.

Sweat eczema.—Excessive secretion of sweat, without any alteration in the character of that fluid, may also prepare the way for eczema by so modifying the condition of the skin as to make it prone to become the seat of the eczematous process as already defined. The most common situations for the development of this form of eczema are the parts where two opposed surfaces of skin rub against each other—between the nates, between the scrotum and the thigh, in the axilla, between the toes, in the deep folds under an overhanging breast, and in the hypogastric region under a prominent abdomen. The sweat in such parts is apt to undergo decomposition, and this fluid, mixed with shreds of macerated epithelium and "fluff" from the underclothing, forms a substance highly irritating to the skin. It must be understood, however, that hyperidrosis *plus* friction can only produce a dermatitis similar to that caused by other chemical and mechanical irritants; for the production of eczema—*i.e.* of a train of lesions which may persist after removal of the conditions that engendered them, and which may be followed by the development of similar lesions in other parts that have not been exposed to the same irritation—a *tertium quid* is required. This at present undetermined factor, which dermatologists of the older school assume to be gout or some equally convenient dyscrasia, will in all probability be shown to be the action of micro-organisms. Sweat eczema is almost always, in the first instance at least, an intertrigo, but is distinguishable from the erythematous form of that affection by the "weeping" of the opposed surfaces and the resulting crusts. It is not necessary, however, for the development of the eruption that there should be chafing; the eczema, which is one of the signs of the "crisis" of the cold-water cure, is due

to the profuse sweating which is the principal effect of that method of treatment.

Eczema folliculorum, which was first described as a special form of the disease by the author, begins in inflammation of the hair follicles. Each inflamed follicle stands out on the skin as an angry-looking red pimple; the capillaries around are congested and soon the skin is involved in the process. In this way red patches dotted with inflamed follicles are formed, which tend to spread by the extension of the inflammation from follicle to follicle. As a patch spreads at the edge it usually undergoes resolution in the centre, desquamation takes place, and the redness fades into a yellowish stain. The itching is often most intense. The patches are generally multiple and are scattered about the body, especially on the extensor surfaces of the arms and legs. The predilection of eczema folliculorum for the extensor surfaces of the limbs is a distinctive feature as regards distribution, other forms of eczema showing a preference for the flexures of joints. The affection is obstinate and recurrence is almost the rule. It is closely allied to sycosis, and there can be little doubt that it is of parasitic origin.

"Nervous eczema."—Apart from the special forms of eczema that have been described, there is a large class of cases in which the disease springs up *de novo* in skin that has not been the seat of seborrhœa or other preparatory process. This class, in the absence of any definite objective characteristic, I propose to designate as "nervous eczema," though, as will be explained farther on, I include under that term many eczemas in which the nervous system is not the only, nor the chief, etiological factor in operation. That eczema may be of purely nervous origin appears to be admitted by Unna himself, inasmuch as he expressly

states that one of his three types of infantile eczema is caused by reflex irritation during dentition, and disappears when the tooth has cut its way through the gum. Elliot * has applied the name of "reflex neurotic eczema" to what he considers to be a definite type of the disease which he has seen in babies and young children. Barham † has described a "neurotic eczema" presenting objective features sufficient to distinguish it from other forms of the disease. These are: (1) Grouping of the lesions in circumscribed patches sharply separated from adjoining lesions; (2) symmetry of the eruption as a whole; (3) preference for the extensor surfaces of the extremities; (4) absence of peripheral spreading on contraction of the separate patches. My own experience leads me to the conclusion that when eczema arises in apparently normal skin it is always nervous in origin, though the parasitic element often comes into play as a secondary factor. I cannot say, however, that I have observed any peculiarities of appearance or distribution whereby a purely neurotic eczema could be distinguished from other forms of the disease.

Symptoms.—The objective phenomena of eczema have been described in the preceding pages, and incidental mention has been made of the subjective symptoms characterising the different forms of the disease. It may not be amiss, however, to pass the latter rapidly in review for purposes of comparison. The only ones that need concern us here are itching and pain. These symptoms, particularly the former, vary greatly in intensity according to the temperament of the patient or the structure and condition of his skin. The lesions which in a person of "lymphatic" temperament cause only slight annoyance may in a

* *Internat. Med. Magazine*, October, 1892.

† *Med. Record*, July 9th, 1892, and Philadelphia *Med. News*, March 25th, 1893.

neurotic or gouty subject give rise to nerve storms of such intensity as to banish him from society and almost to wreck his reason. Nor is the intensity of the itching in proportion to the severity and extent of the lesions; it is often worst when there is little or nothing to see, *e.g.* in the erythematous eczema of the scalp common in old people. In such cases the exudation imprisoned beneath the horny layer probably presses on or irritates the terminal filaments of the sensory nerves of the skin, and the relief given by free scarification of the parts with the finger-nails seems to give some confirmation of this view. It not infrequently happens that, owing to disturbance of innervation, itching persists long after every trace of lesion has disappeared. How profound an impression eczema may leave on the nervous apparatus of the skin is shown by the fact that in some cases where the disease has lasted a long time the skin appears to be so much under its dominion that the slightest accidental irritation is sufficient to bring on an attack. Pain is not often severe, except when inflammation runs high and causes great heat and tension of the skin; the pain generally subsides as soon as the effusion finds its way to the surface. In the neighbourhood of parts, as the mouth, genitals, anus, etc., which cannot be kept at rest, the skin becomes thickened and tender, and the cracks caused by movement are so painful as to interfere with the performance of natural functions. The only other subjective symptoms caused by eczema are an exaggerated sensitiveness to cold and a feeling of lassitude or disinclination for work (Jamieson).

Complications.—*Locally*, the eczematous process is often complicated by inflammation of the related lymphatic vessels and glands. As the result of scratching, pus cocci may be inoculated, and when

these penetrate from the superficial to the deeper layers of the skin they cause the development of painful boils. Of *internal* complications the most common is dyspepsia. Gout is also a frequent concomitant. Both these conditions have been supposed to stand in a causal relation to eczema, but to me they appear to be nothing more than accidental complications. The case is somewhat different as regards asthma. That affection is so often associated with eczema that whenever a patient suffering from the latter affection comes before me I am in the habit of asking if he is subject to asthma. It will be seen later that I regard these two affections as frequently dependent on a common cause.

Diagnosis.—In a certain proportion of cases of eczema the diagnosis presents no difficulty, the appearance of the lesions, and particularly the "weeping," being sufficient for the identification of the disease. Sometimes, however, the nature of the affection may be obscured by the very multiformity which is one of its characteristic features. In such cases one must have recourse to a process of exclusion. No reliance must be placed on subjective symptoms, as they are so variable that they can serve only as an index of the patient's temperament and of what may be called the temperament of his skin. All discharge, crusts, or accumulations of scales should first be removed, and a careful examination should be made of every affected spot. However multiform the lesions may be, one seldom fails, if an adequate search be made, to discover somewhere or other a patch which can be recognised as eczematous. This at once settles any doubt as to the nature of the disease. Secondary syphilis and erythema multiforme are the two conditions which, in the multiformity of their lesions, most resemble eczema. If the lesions are syphilitic there will be other signs of the disease,

while erythema multiforme can be identified either by the presence of some typical lesion, such as so-called herpes or erythema iris, or by the preponderance of red raised patches without scales, and especially without any trace of "weeping." Erysipelas can be excluded by the absence of constitutional symptoms and of the characteristic brawny induration and ridged border.

Of parasitic diseases, the one which most closely resembles eczema is scabies; the lesions are so similar that when the characteristic burrows are not visible nor the itch-mite discoverable a mistake might easily be made. The lesions of itch are, however, isolated, not grouped into patches; and further, they lack the spreading edge characteristic of eczema. There are, moreover, differences in the distribution of the two affections—scabies being scattered irregularly and showing a marked predilection for the hands, especially in the interdigital spaces, the wrists, the inner side of the thigh, the abdomen, the pubes, and the axilla; while eczema is nearly always more or less symmetrical, and most affects the head, the trunk, and the flexures of joints. Sycosis of the chin sometimes simulates eczema of that region so closely that it is almost impossible to distinguish the one from the other, except by the fact that sycosis shows no tendency to spread beyond the area covered by hair. Ringworm of the scalp can be identified by the broken hairs which can always be found on careful search. Tinea circinata, if it occurs as a scaly patch on the trunk, can be recognised with the help of the microscope. Favus of the scalp is distinguishable by its cup-shaped crusts and its mousy smell. From herpes in general eczema is distinguished by the characteristic "weeping," and from zoster in particular by the distribution, which does not follow that of the cutaneous nerves. Impetigo contagiosa may sometimes be mistaken

for pustular eczema; in such cases search must be made for definitely eczematous lesions in other parts. It is to be noted also that in impetigo contagiosa there is little or no inflammatory areola around the crusts. Eczema papulatum often resembles lichen ruber planus; in the latter affection, however, the papules are irregular in outline, and neither discharge nor crust formation is ever observed. Certain forms of dry seborrhœic eczema are very difficult to distinguish from psoriasis. Attention to the following points of difference will help the practitioner to come to a correct conclusion. In the first place, psoriasis is always dry; moreover, it has a typical distribution and spreads from the elbows and knees. Eczema, on the other hand, in the majority of cases, spreads downwards from the head. Further, patches of psoriasis have a sharply-defined border, and are not so stationary as those of eczema. In the former the scales are silver-white; in the latter yellowish, with a distinctive fatty and crumbling character which is absent in psoriasis. Lastly, in psoriasis there is no history of previous seborrhœa.

Eczema of the nipple may be distinguished from Paget's disease by the absence of the parchment-like induration and retraction of the nipple, which are characteristic features of the latter condition.

Etiology.—The causation of eczema has not yet been definitively established by scientific evidence, but it is clear that for its production two conditions at least are necessary. These are: first, a predisposition or special irritability of the skin; secondly, an exciting influence which brings this irritability into action. The abnormal vulnerability of the skin may depend on certain peculiarities of structure, or it may be the result of a pre-existing morbid condition; or, again, it may be connected with some underlying constitutional state. The exciting influences may

act on the skin directly by setting up irritation and so causing the development of the lesions; or indirectly through the nervous system. In many cases both these modes of attack are combined. Lastly, the eczematous process, when set in motion by the causes that have been referred to, may be intensified and kept up indefinitely by secondary causes, such as the patient's state of health, his exposure to sources of additional irritation, etc.

As regards peculiarity of tissue, fair-haired persons appear to be somewhat more liable to eczema than those of darker complexion (Jamieson). A thin, dry, anæmic skin, with deficiency of subcutaneous fat, affords a very favourable soil for the development of the process. The disease is not infrequently associated with xerodermia, a congenital anomaly characterised by abnormal dryness of the epidermis—in fact, a mild form of ichthyosis. Such anomalies are often inherited, and the tendency to eczema may be transmitted with them; in this sense only is eczema hereditary. On the other hand, skins in which the sudoriparous glands are over-active are especially liable to "sweat eczema." But the condition of all others which makes the skin most vulnerable to attack is seborrhœa. I do not go to the length of saying with Unna, "Treat the seborrhœa of children and you will not later have eczema in adults," * but I am convinced that if there were no seborrhœa there would be much less eczema.

In the same way the ground may be prepared for eczema by artificial dermatitis. As has already been explained, I do not look upon the eruptions caused by chemical or mechanical irritants as coming under the category of eczema; undoubtedly, however, such lesions may be the starting-points of the disease.

* Congrès Intern. de Derm. et de Syph., tenu à Paris en 1889; *Comptes Rendus*, Paris, 1890, p. 544.

Thus it is by no means uncommon to see artificial dermatitis on a bricklayer's hands, followed by the development of patches of true eczema on parts of the skin that have never been in contact with lime; and the eczema may persist and reproduce itself in different spots when the *eczematoid* lesions in which it took origin have disappeared. It is clear, therefore, that in such cases some other agency besides the original cause of irritation has come into play; to the lime there has been superadded an irritant of a different kind, the action of which is not temporary and localised, but continuous and self-multiplying. There can be little doubt that this additional irritant, which transforms a simple seborrhœa or dermatitis into an eczema, is the action of micro-organisms. As has already been pointed out, the skin has an abundant and varied microbic flora of its own; under normal conditions these organisms do no harm, but it is easy to understand how the lesions produced by previous disease may make the integument more vulnerable to their attacks. Although no specific micro-organism has yet been shown to be constantly associated with eczema, there is no other hypothesis that satisfactorily explains all the facts. The success of treatment based on the theory that the disease is of parasitic nature is a strong argument in favour of its truth. But while believing that seborrhœic and allied forms of eczema are always of microbic origin, I am not prepared to follow Unna * in regarding all eczemas as parasitic. In a not inconsiderable number of cases it develops on perfectly healthy skin, apparently as the result of some disorder of the nervous system. Bulkley † gives some striking

* "On the Nature and Treatment of Eczema;" *Brit. Journ. of Derm.*, 1890, page 231, *et seq.*

† "On the Relation of Eczema to Disturbances of the Nervous System;" Philadelphia *Med. News*, Jan. 2, Feb. 7, 1891.

examples of eczema following worry, mental strain, and nervous shock. More than one case traceable to the "Black Friday" financial panic in Wall Street came under his notice. According to Radouan, the siege of Paris by the Germans and the brief "reign of terror" of the Commune in 1871 left their impress on the skins of many persons in the form of eczema.* I have myself known the disease in its acutest form follow a fright. The nervous depression caused by chill manifests itself in some persons as catarrh of the skin—that is, eczema—just as in others it shows itself as catarrh of the respiratory membrane, and in others again as catarrh of the intestine. Thus a man may go to business in the morning on the top of an omnibus, being at the time to all appearance in perfect health; he may feel that he has "taken a chill," and begin to shiver and complain of general *malaise;* on reaching home in the evening, however, he may find that instead of a catarrh of his mucous membrane he has developed a well-marked eczema. Reflex nervous irritation from the uterus, the stomach, the intestine, etc., often seems to be the exciting cause of eczema. In some women menstruation and pregnancy are generally accompanied by an attack of eczema, and the disease is also not uncommonly one of the indications of the "change of life." Eczema is sometimes a result of the irritation caused by indigestible food in the stomach, or by worms in the intestinal canal.† The origin of eczematous eruptions beginning on the cheeks, eyelids, etc., has been traced to disturbances of vision, and the skin lesions have ceased to appear when the eye troubles have been

* "Étude Théor. et Prat. sur l'Eczéma:" Thèse de Paris, 1875.

† Scarenzio (quoted by Bulkley loc. cit.) records two cases in which eczema was due to the presence of tapeworm, and one in which it depended on the oxyuris.

removed.* Unna has described a special type of eczema on the face in infants occurring in connection with dentition. † While not denying that reflex irritation from that source may give rise to eczema, I am inclined to think that in the majority of cases the production of the skin affection is rather to be explained by the seborrhœa which is apt to be set up by the abnormally large amount of blood supplied to the head in infants for the building up of bone and brain. The same influence is more or less actively at work in all growing children, hence the frequency of seborrhœa at that time of life. Eczematous eruptions may also be produced by reflex irritation of peripheral origin, as in the case of burns, etc.; or they may be a consequence of changes in the nerves resulting from injury or disease, or they may be connected with functional neurosis.‡ Colomiatti§ found structural changes in the cutaneous nerves in several cases of eczema, mostly of the papulo-squamous type, and that these changes were in direct relation to the process in the skin he held to be proved by the fact that in cases in which the skin lesions were wholly or partly cured, the nerves also had in great measure recovered their normal appearance. These observations have since been confirmed by Leloir. ‖ Of the relationship between eczema and certain forms of functional neurosis there cannot be a better illustration than the fact that it is frequently associated with asthma; so close, indeed, is the connection between the two affections that asthma is believed by some to be—at least in certain cases—simply eczema of the bronchial tubes. It is noteworthy that persons who are the

* Juler, *Lancet*, 1884.

† *Journ. Cutan. and Gen. Urin. Diseases*, December, 1887.

‡ Examples of eczema following these different forms of nerve disorder are cited from various authors by Bulkley, loc. cit.

§ *Giorn. Ital. d. Malattie Veneree e della Pelle*, 1879.

‖ *Ann. de Derm. et Syph.*, 1890.

subjects of xerodermia very frequently also suffer from asthma. It is probable that both the eczema and the asthma are the response by the skin and respiratory mucous membrane respectively to some central or peripheral irritation to which both alike are exposed. Cases have been reported by Charcot, Vulpian, and others in which eczema occurred in association with disease of the brain or spinal cord, but there is not yet sufficient evidence to show whether the skin affection in these cases was the result of the nerve disease or an accidental coincidence. Anything, however, which interferes with the proper nutrition of the skin lessens its power of resistance to injurious influences, and in this way disease of the central nervous system may be regarded as a predisposing cause of eczema. The affection is said to be frequent among the insane.* The exact mode in which eczema is induced by nerve disorder is still somewhat obscure. Such evidence as is available is almost entirely clinical. It is certain that under the influence of nerve shock and nerve exhaustion (neurasthenia) eczema may arise *de novo* in a previously healthy skin. In such circumstances the trophic influence of the nervous system on the skin is, to a greater or less extent, impaired; and, according to Leloir † and Bulkley,‡ eczema may be the result. In other words, eczema is, in the opinion of these distinguished dermatologists, simply a trophoneurosis. Here again, however, to my mind something more is required for the development of a process so complex in its manifestations as eczema. It appears to me more reasonable to look on the inhibition of trophic influence as preparing the way for eczema by reducing

* Fèvre and Nicol, quoted by Bulkley, loc. cit.

† "Recherches Cliniques sur les Affections Cutanées d'Origine Nerveuse," Paris, 1882.

‡ Loc. cit.

the skin to a condition of lowered vitality in which it is powerless to resist the action of micro-organisms.

As regards reflex irritation the case is somewhat different. It has already been shown that vaso-motor disturbance alone is sufficient to produce all the essential lesions of the eczematous process. Even here, however, microbes must often intervene or there would be no pustules. While, therefore, not prepared to go the length of maintaining, with Unna, that eczema is always parasitic, I am still less disposed to accept the view of Leloir and Bulkley that it is never anything more than a neurosis. That in the majority of cases eczema is parasitic is proved by the effect of antiparasitic treatment; that there are many cases in which the affection is of nervous origin is shown by the fact that it may be cured by remedies that act on the nervous system. Moreover, in many parasitic cases the neurotic element may be so pronounced as to furnish the leading indication for treatment. Apart from the condition of the nervous system, I attach little importance to the constitution of the patient as an etiological factor in regard to eczema. The tendency to that affection is sometimes found associated with rheumatism, and sufferers from gout are prone to eczema as they are to other forms of catarrh. There is not, however, any form of skin lesion known to me which can properly be called "gouty eczema;" in other words, there is no special type of eczema that can be recognised objectively as of gouty origin. Brocq* describes an *eczéma erysipélatoïde recidivant des arthritiques*, characterised by the rapid occurrence of inflammatory attacks of great intensity, almost always affecting the head and face, sometimes the hands, genitals, etc.; the skin is swollen and red as in erysipelas, and constitutional disturbance is more or less severe. Although gout is

* Op. cit., pp. 154-55.

so common in Great Britain I am not familiar with a type of skin affection answering to this description. In Germany, where gout is comparatively rare, eczema is just as common as it is in England. But while denying that gout is of itself sufficient to produce eczema, I am willing to admit that the gouty diathesis or any other constitutional state characterised by a tendency to sudden vaso-motor disturbance may aggravate the skin affection to such an extent as to require to be taken into account in treatment.

There is no connection between eczema and rickets, nor has malnutrition any direct influence in its production. The disease is just as common in the well-nourished children of well-to-do people as in those of the poor, and breast-fed infants are no more exempt from it than those brought up by hand. Nor has scrofula anything to do with the production of eczema except in as far as proclivity to catarrh is one of the notes of the scrofulous diathesis. It is true many children suffering from eczema are the subjects of scrofula, but on the other hand there are far more eczematous children than scrofula can account for. It is almost unnecessary to say that though scrofula cannot produce eczema, it may have a powerful modifying influence on the lesions.

Eczema is not as a rule contagious, but when parasitic it is auto-inoculable; in this way it reproduces itself in distant foci, while individual patches continue to spread at the edge. Sometimes it appears to be inoculable from one patient to another. Thus the arms of nurses who carry babies suffering from eczema of the nates may become irritated, and eczema may be induced by scratching.*

To sum up: eczema in a large proportion of cases is of parasitic origin, but the parasites cannot produce

* Jamieson, op. cit., p. 215.

the lesions unless they find a suitable soil in which to proliferate. In some cases the skin is made suitable for this purpose by seborrhœa or other pre-existing morbid condition; in others by diminished resistance owing to loss of nerve control. In another class of cases the disease is probably altogether of nervous origin. When once started it spreads from one or two centres by auto-inoculation if parasitic, by reflex irritation if neurotic.

Pathology.—Eczema is essentially a catarrhal inflammation of the skin, and the appearances found are those characteristic of that process, being more or less marked in proportion to its severity. Colomiatti, as already said, found changes indicative of neuritis in the nerves supplied to the affected parts of the skin, and in one case *—that of a patient suffering from acute universal eczema, who died of pneumonia —"the upper cervical ganglia of the sympathetic, as also of the cœliac, were visibly hyperæmic to the naked eye, and on microscopic section the changes were still more evident." No conclusion can, however, be drawn from a single case, and it is obvious that the changes in the sympathetic ganglia here described may have been connected with the inflammation of the lung rather than with the eczema.

When eczema has lasted some time it often gives rise to thickening and hardening—sometimes almost wooden in consistence. In certain rare cases the hypertrophy may be so great as to simulate elephantiasis. In other cases a persistent warty condition may be induced.

Prognosis.—Eczema can nearly always be cured by a proper course of treatment perseveringly pursued. In many cases, however, the condition is extremely obstinate, and recurrence is the rule rather than the

* Marcacci: *Giornale Ital. d. Malattie Veneree e della Pelle*, 1878.

exception. When the neurotic element is strongly pronounced the prospect of cure is much less favourable than in cases of seborrhœic origin. The general health of the patient must also be taken into account in forming a prognosis.

CHAPTER XI.

ECZEMA (*concluded*).

Treatment.

With regard to treatment, the question that meets us on the threshold is whether eczema should be treated at all. There is a popular notion that the affection is a kind of safety-valve which it is dangerous to close; nor is this idea confined to the laity. So experienced a practitioner as Brocq warns us against interfering too actively with eczema in elderly persons or in gouty, rheumatic, emphysematous, and asthmatical subjects, and sufferers from chronic bronchitis, melancholia, Bright's disease, dyspepsia, etc. "By treating their eczema too energetically one may, in fact, determine the onset of pulmonary or even cerebral congestions of the gravest kind." * He has reported a case in which he believes that "the sudden suppression of a chronic pruriginous eczema of several years' date in a patient suffering from old asthma, melancholia, and troubled with occipital and temporal neuralgia, was followed by the appearance of morbid phenomena of cerebral origin, of a nature so grave as even to put the life of the patient in danger—phenomena which lasted for many months, and which all disappeared completely as soon as an 'issue' was formed on the nape by means of a blister or the cautery, but especially after the reappearance of the pruriginous eczema of the genitals." † Brocq expressly says that eczema in certain "morbid

* "Traitement des Maladies de la Peau," Paris, 1890, p. 173.

† "Accidents which may follow the suppression of a chronic eczematous eruption." (*Brit. Journ. of Derm.*, vol. i., Nov., 1888 to Dec., 1889, p. 105, *et seq.*)

determinations" affecting internal organs acts as a derivative—in fact, as a kind of emunctory.* A similar view is strongly held with regard to eczema in children by Gaucher.† He distinguishes between seborrhœa, which he says is a local affection, the cure of which cannot be followed by any ill effect, and true eczema—whether of the oozing or papular (lichenoid) form—which he looks upon as an affection originating from an internal "diathetic" cause. This eczema he believes it to be dangerous to cure, especially in the case of children. Gaucher appears to regard eczema as a provision of nature for the elimination of "toxic principles" resulting from constitutional and often hereditary disorders of nutrition. By shutting up this outlet these toxic principles are made to accumulate in the internal organs, "with consequences more or less rapid and more or less serious, according to the seat of the metastasis." In other words, Gaucher shares the superstition which is so widely prevalent among the public as to the dangers of "driving in" the disease. Holding, as I do, that in a large proportion of cases eczema is of parasitic origin, and that the constitution, when involved at all, plays but a secondary part in the process, I am utterly opposed to the *laissez-aller* principle in dealing with the disease. The caution in treating eczema which is so emphatically enjoined on us is based on the assumption that we have a power of controlling the process which we are very far from possessing. Even if the "abrupt soothing down of the cutaneous phenomena" deprecated by Brocq were as dangerous as he thinks, the practitioner need not be afraid to treat them, since it is quite exceptional for the disease to be "abruptly soothed down" by

* *Brit. Journ. of Derm.*, Vol. i., Nov., 1888 to Dec., 1889, p. 111.

† Congrès Intern. de Derm. et de Syph. tenu à Paris en 1889, p. 538, *et seq.*

any means at our disposal. In every case that comes before me I do my best to subdue the process and cure the lesions as rapidly and as thoroughly as possible, and I can confidently state that in the large number of cases of eczema which I have treated during the last fifteen years I have never seen one in which the cure or abatement of the disease was followed by any ill effect whatever. My view therefore is that the practitioner should in all cases endeavour to cure eczema whenever he meets with it; the only caution necessary is that he should accurately adapt his remedies not only to the process, but to the patient.

The first step towards successful treatment is to determine whether the disease is of parasitic or of neurotic origin—that is to say, whether it is to be cured by local or by general remedies. As already said, these two etiological elements are often combined, and in that case it is important to ascertain which of them predominates in a given case.

Internal remedies.—In dealing with eczema the beginning of therapeutic wisdom is to clear one's mind of the notion that arsenic or any other drug is a specific. The practitioner must learn not to look upon it as a fixed law that internal remedies are to be given in every case. As a general rule, indeed, the less drugging the better. But if internal remedies have to be employed they should be given only for a definite purpose and in accordance with definite indications. Random polypharmacy is unjust and often hurtful to the patient and an obstacle to scientific progress. How can we expect to gain any accurate knowledge of the action of medicines if they are used by the half-dozen at a time like charges of small shot fired at the disease?

For the subduing of the inflammation in so-called "acute" cases there is, in my experience, nothing

equal to antimony. Small doses of the vinum antimoniale quickly relieve the arterial tension and thus reduce the local inflammation. If the patient's constitution is sound I generally begin by giving ℥x to ℥xiij of the wine, repeating the dose in an hour, and if necessary again two hours later. The interval between the administrations is gradually increased, while the amount is diminished till a dose of ℥vj is reached. This should be given three times in the twenty-four hours as long as the acute symptoms last. When there is no great arterial tension, and when depression is a prominent symptom, antimony should not be given. On the other hand, in all acute inflammatory conditions of the skin, iron only adds fuel to the flame by increasing the activity of blood formation. Arsenic is also contra-indicated under such circumstances. Stimulants must be forbidden, the diet should be of the simplest kind, and the bowels must be carefully regulated. The clothing should be light, and it is particularly important that the patient when in bed should not be covered with heavy blankets, as the symptoms are always intensified at night. Complete rest, both of mind and body, should as far as possible be secured. If the area of skin involved is very extensive, the patient should be kept in bed. When nervous symptoms are pronounced, appropriate sedatives must be administered. In the front rank of these is opium, which soothes excitement, allays irritation, induces sleep, and so restores the exhausted nervous energy. If need be, the remedy should also be given during the day; sometimes it may be necessary to keep the sufferer almost continuously under the influence of opium or morphia. In such cases the constipating effect of the drug should be counteracted by giving a mild aperient, such as Carlsbad salts, Friedrichshall, or other saline purgative, in the morning. If opium disagrees,

chloral, sulphonal, or phenacetin may be substituted for it. If prostration is a marked feature in the case, it will be well to commence treatment by giving quinine; this remedy may often, with great advantage, be combined with opium. In neurotic cases arsenic sometimes does good, but my experience is that it can never be relied on in eczema. Strychnine, and especially phosphorus, are more frequently of use in such cases, and ergot may occasionally prove serviceable, probably by its action on the vaso-motor apparatus. In women, at the climacteric period, and in hysterical subjects, such remedies as musk, valerian, etc., should be used; and in all cases, if any definite source of peripheral irritation can be discovered, it should if possible be removed. When the discharge is very profuse quinine may usefully be combined with belladonna. When the disease is very rebellious, fresh exacerbations occurring every few days, Crocker has found counter-irritation (by means of blistering fluid, mustard-leaf, etc.) applied over the vaso-motor centres of the part very useful.* In all cases the patient's general health must be attended to, complications, like dyspepsia, etc., being dealt with as the occasion arises, and constitutional conditions, such as rheumatism, gout, diabetes, renal disease, rickets, and scrofula, being treated in accordance with the general principles of practice.

Local treatment.—Although internal medication may be a useful adjuvant in the treatment of eczema, the practitioner who, from a mistaken belief in the constitutional nature of the disease, trusts entirely thereto will find that he is leaning on a broken reed. Eczema, being in a large proportion of cases of parasitic origin, can be cured only by appropriate local remedies, and in seborrhœic cases,

* "Diseases of the Skin," p. 136, second edition, London, 1893.

when the patient's general health is sound, no other treatment is required. It must, however, be understood that for local treatment to be successful two conditions must be fulfilled. First, the strength of the application employed must be judiciously tempered to the intensity of the process which it is intended to combat; secondly, the lesions must be kept continuously under the influence of the remedy. The mere perfunctory application, morning and night, of a solution or an ointment can have little or no effect in checking the disease. The guiding principle in the local treatment of eczema must be to destroy the irritant while soothing the inflammatory reaction set up by its presence.

A necessary preliminary to local treatment is the removal of all crusts and scales that prevent the remedy from having free access to the seat of disease. They can be softened by means of oil applied on strips of lint, or weak solutions of bicarbonate of soda. Crusts are readily loosened by keeping the parts covered for a few days with thin indiarubber; this method is especially useful on the head and limbs. When the crusts have been got rid of, the next step is to attack the disease directly. In the local treatment of eczema three objects have to be kept in view. First, the destruction of the parasites; secondly, the protection of the inflamed surface from the air and from possible invasion by fresh microbes; thirdly, the relief of irritation. As it is of the utmost importance not to aggravate the inflammatory process, an unirritating parasiticide agent should be employed in the first instance; the strength of the application should be very moderate to begin with, and may be gradually increased as the symptoms subside. When there is much discharge a weak solution of boracic acid is particularly useful for the washing of the affected part. The lotion

should be dabbed on with a wet cloth. A towel should not be used, but the discharging area may be dried by means of muslin bags containing starch, with a small quantity of powdered boracic acid. Sometimes the parts are so sensitive that the patient cannot bear this application; in that case, flour mixed with a little powdered boracic acid should be dredged over the oozing surface. This procedure is, however, attended with the disadvantage that the flour becomes caked on the part, making it stiff and painful to move.

During the acute stage the parts should never be washed with water, and even when the violence of the inflammation has subsided, washing should not be frequent, and friction with towels should be carefully avoided. Hard water should on no account be used; only rain-water or water that has been boiled should be allowed to come in contact with the eczematous skin. It is better not to use soap of any kind, but if any must be employed, one of the superfatted medicated class introduced by Unna should be selected.

For the protection of the inflamed surface from the air, and for the relief of irritation, greasy applications in the form of "creams" are most useful. These should be as emollient as possible. Some ointments have a tendency to heat the skin, while others impart a feeling of coolness to it. Unna attributes the latter property to the fact that in these "creams" a certain proportion of water is combined with the fatty base; this facilitates evaporation.* The best cooling salve consists of the following ingredients:—

℞	Aq. rosarum	10·0
	Ol. amygdal.	10·0
	Ceræ albæ	1·0
	Cetacei	1·0

M.

* *Monatsh. f. prakt. Derm.*, June, 1884.

This cold cream forms a good base for various compound ointments, and may be made the excipient for different antiseptic agents. For the continuous application of parasiticide agents, pastes, salve muslins, sticks, plaster muslins, and varnishes may be employed. A useful paste may be formed by mixing together equal parts of starch and zinc ointment; to this any antiseptic that may be desired can be added. The following is the formula of Lassar's paste, which I have found valuable both by itself and as a basis for other drugs:—

℞	Acidi salicylici	...	...	...	10 grs.
	Vaselini opt. ...	...	...	...	ʒss
	Zinci oxidi ...	...	...	...	ʒij
	Pulv. amyli	...	...	...	ʒij

M.

Resorcin, ichthyol, tar, etc., can be added to this paste. Sticks, as suggested by Brooke of Manchester, may also be the vehicles of antiseptic agents. The base of the stick is cocoa butter, and in this way boracic acid, salicylic acid, ichthyol, oxide of mercury, resorcin, sulphur, etc., may be kept in contact with diseased surfaces. Both the pastes and sticks may be flesh-tinted with Armenian redbole, so that they can be worn on the face or hands without exciting remark.*

Salve muslins were introduced by Unna, and form a very convenient means of keeping remedial agents in continuous contact with the parts on which it is desired to act. These consist of muslin spread with a consistent layer of benzoated lard and wax; vaseline or lanolin may, if desired, be substituted for the lard. These salve muslins may be the vehicles of carbolic acid, white precipitate, boracic acid, ichthyol, salicylic acid, sulphur, resorcin, etc.; pieces of the

* Methods of colouring ointments so as to match with the colour of healthy skin have been described by Brooke (*Brit. Journ. of Dermatology*, 1890, p. 186).

salve muslin of the size required may be cut off and accurately fitted to the part to be treated. The salve muslins may be obtained spread on both sides. These preparations form the most convenient means of treating eczematous lesions in which the discharge is no longer profuse. The salve muslins are of use in the earlier acute stages of eczema; plaster muslins are best adapted for chronic patches left behind, when the acute stage is past. These plaster muslins may also be the vehicles for every kind of local remedy. Another equally convenient method of keeping remedies in contact with eczematous lesions is the glycerine jelly or varnish employed by Pick and modified by Unna. The advantage of these varnishes is that they can be applied to any part of the body, so as to form a tight-fitting and at the same time pliable covering, which can at any time be easily removed and readily reapplied.

In all cases, as has already been said, it is always advisable to commence local treatment with very mild applications. One must feel one's way, so to speak, as it is impossible to know beforehand whether a particular remedy may not cause irritation. The best application in seborrhœic and all other parasitic forms of eczema is sulphur. At first a small quantity of sulphur, combined with a soothing application, such as zinc ointment, should be used. The proportion of 10 grains of precipitated sulphur to ℥j of zinc ointment is quite strong enough to begin with; the amount of sulphur should be gradually increased if the application is well borne. The ointment should be spread on strips of thin linen, which must be laid evenly on the part and fixed in position with a bandage. If the face is the part to be treated, it should be covered with a mask. Resorcin may be employed in the same way. Both that drug and sulphur have this special advantage, that they not only destroy the

micro-organisms on the surface, but cause rapid exfoliation of the horny layer, thus getting rid of the parasites in the deeper parts of the epidermis. Ichthyol is useful in acute forms of eczema for its sedative as well as its microbicide properties. In a large number of cases a solution of ichthyol painted over the inflamed area, or in an ointment, will allay irritation, cause contraction of the cutaneous blood-vessels, and so check the discharge besides destroying parasites. In seborrhœic eczema ichthyol is best applied in the form of the varnish recommended by Unna, the composition of which is as follows: ℞. Ichthyol 40 parts, starch 40 parts, albumen 1 to 1½ part, water to 100 parts; or the albumen may be omitted and the proportion of the other ingredients modified as follows: ℞. Ichthyol 25 parts, carbolic acid 2½ parts, starch 50 parts, water 22½ parts.

Patches of chronic eczema may be the results of the acute form or the remains of a seborrhœic affection. In the latter case they should be treated with strong applications of sulphur and other antiseptics spread on linen; or better still, in the form of the plaster muslins already referred to. Chronic eczematous patches of non-seborrhœic origin are often the seat of violent itching; this can generally be relieved by applications of carbolic acid with a sponge or on a piece of rag. The following is a useful formula:—

℞ Acidi carbolici ... ... ʒj
Glycerini puri ... ... ʒij
Aquæ ... ... ad ʒviij
M.

A wash of tar, in the form of liquor carbonis detergens, and a weak solution of nitrate of silver in sp. æth. nit. (gr. xx to ʒj), is also useful for the same purpose. For the resolution of the patches a plaster muslin of yellow oxide of mercury, with or without

resorcin, is a serviceable application. One of the best remedies for chronic patches, however, is chrysarobin; but the patient must be warned that the application sometimes causes redness and pain and stains linen and clothes. It may be applied as an ointment made with lanolin and oil in the strength of gr. x—℥j to ℥j, or in the form of a plaster muslin. For the removal of the secondary thickenings, which are often left after long-standing eczematous lesions, massage is often extremely useful. For the varicose veins, which almost invariably accompany eczema of the legs, Martin's bandage or elastic stockings should be worn.

Certain modifications of local treatment are necessary according to the part that is the seat of disease. Thus between opposing surfaces, as between the scrotum and the thigh, behind the ears, etc., long narrow bags made of thin cambric or muslin, and partially filled with starch-powder, powdered boracic acid, or a mixture of powdered talc (87 parts), powdered starch (10 parts), and salicylic acid (3 parts), should be placed; the parts are thus dried and kept in an antiseptic state. In seborrhœic eczema of the scalp and other hairy parts the hair should be cut short, and after softening and removal of the crusts, sulphur spread on strips of lint should be applied and fixed in position with a cap or bandage. About the ears, and on the vulva, in both of which situations the swelling is often very great, astringent and cooling lotions, such as lactate of lead and calamine lotion, give great relief. On the face, as already said, the local applications should, in the case of children, be kept in position by a mask. When extensive areas of skin are involved, as on the arms or legs, swathing the parts in strips of linen soaked in calamine liniment generally relieves the irritation; but when the inflammatory process begins to subside, antiseptics

must be kept continuously applied in one or other of the ways that have been mentioned.

The general and local treatment that has been described has often to be supplemented by other measures which, though not in themselves curative, are useful *adjuvants*. The chief of these are diet, clothing, hydrotherapy, and climate.

As regards *diet*, the practitioner must, in the first place, clear his mind of the superstition as to this matter which is so strongly implanted in the mind, not only of the public, but of a section of the medical profession, especially those of the older school. Their ideas on the influence of diet in eczema are founded on the belief that every skin eruption requires to be treated constitutionally. This notion, as has been seen, is entirely erroneous, and I cannot help suspecting that it has arisen at least partly in consequence of the ignorance which prevailed till lately as to the action and proper method of using local remedies. The excessive "lowering" diet, on which so much stress is still laid by some, is not only unnecessary, but positively contra-indicated, except when the inflammation is extremely intense.

In parasitic cases dietetic treatment is utterly useless, and a recognition of this truth will save patients a good deal of needless privation. I might quote, in proof of what has just been said, numerous cases in which patients have been most carefully dieted for long periods without their eczema being in the slightest degree benefited; whereas on removing all restrictions of diet, and treating the affection by local remedies, a cure has speedily followed. It is only in acute forms of eczema that beer and other stimulants need be forbidden. There is no need to cut off either tea or coffee unless these beverages be definitely contra-indicated by flatulence, palpitation, gastric acidity, or insomnia. Sugar may be allowed,

except in the case of patients of gouty constitution, or when contra-indicated by glycosuria.

The *clothing*, as already said, should be as light as is consistent with proper protection from cold. Too much clothing diminishes the activity of the sebaceous glands, and thereby makes the skin dry, and to some extent predisposes it to eczema. Only silk, fine linen, or soft wool should be worn next the skin.

Hydrotherapy has little direct effect on eczema, though by its alterative action on the system it may indirectly modify the affection of the skin. Sulphur waters, notably those of Harrogate, Luchon, and Strathpeffer, often have a markedly beneficial effect in cases of obstinate eczema. "Indifferent" waters, like those of Bath, are often useful. Bromo-iodide waters are of use only in very chronic conditions. The arsenical waters of La Bourboule and Levico are also of service in similar circumstances. Aperient waters, like those of Carlsbad, are of use in the case of gouty patients on account of their constitutional effect. In my experience the alkaline waters of Vichy have not proved of service in eczema.

Sea-bathing should never be indulged in while eruptions are present on the skin. I have, however, known patients subject to periodical outbreaks of eczema lose their proclivity to the disease as the result of a course of sea-bathing.

With regard to the influence of *climate* in the treatment of eczema, all that need be said is that the disease being catarrhal, climates favourable to the production of catarrh of any kind should, as far as possible, be avoided.

The eczematous process in the skin has been compared to inflammation of a joint. The same analogy holds good with regard to the treatment of these two conditions respectively. The first indication in dealing

with an inflamed joint is to keep it at rest; the next to subdue the intensity of the process and bring about resolution or quiescence; lastly, the products of inflammation must, if possible, be got rid of so that the joint shall recover its natural suppleness. In eczema the same objects have to be aimed at, with the further indication that the parasites which find the lesions a favourable ground for their multiplication have to be destroyed or rendered inert.

To sum up: The fundamental principles which should guide the practitioner in the treatment of eczema are to soothe when the inflammatory process is acute, to stimulate when it is chronic, and in either case to keep the parts under the continuous influence of antiseptics and parasiticides of a strength carefully regulated in accordance with the intensity of the disease and the tolerance of the patient's skin.

CHAPTER XII.

PITYRIASIS.

THE term "pityriasis" indicates not a disease but a symptom. It has been used to denote a variety of conditions, differing widely in their origin, course, and termination, but having one objective feature in common, viz. branny desquamation. The scales are small, easily detached, and not heaped up in layers, as is the case in psoriasis. *Pityriasis simplex*, whether on the head, the face, or the trunk, is now recognised to be identical with dry seborrhœa (page 444); *pityriasis versicolor* is a parasitic disease now known as tinea versicolor (page 324); *pityriasis rubra*, *pityriasis rubra pilaris*, and *pityriasis rosea* are inflammatory processes in which more or less abundant exfoliation of the epithelium is an essential element. The two former constitute a class for which the generic appellation of "exfoliative dermatitis" would be appropriate. In this category should probably be placed those cases in which the epidermis is periodically "cast," wholly or in part, like a serpent's slough. The most remarkable instance with which I am acquainted is that reported by Sligh.* The patient, a man aged 36, is said to have been taken ill with almost unfailing regularity every year since infancy. He complains of "bone ache, weakness, nervousness, and inability to eat;" his temperature rises (101° F.) and he vomits. "Within a few days he has shed his skin from the entire surface of his body, including the finger- and toe-nails. The new skin is as soft and tender as a new-born

* *Internat. Med. Mag.*, June, 1893.

babe's," but rapidly becomes sound, and in four or five days the man can resume work.

The affection already referred to under the name of desquamative scarlatiniform erythema is a form of exfoliative dermatitis; clinically, however, it is more closely allied to simple inflammation of the skin than the more formidable diseases that are about to be described.

Pityriasis rubra.—Pityriasis rubra is an inflammatory affection of the skin characterised by universal redness of the surface without infiltration or thickening, but accompanied by profuse desquamation. This varies in its character in different parts of the body; for example, it is branny on the head, on the trunk it consists of larger flakes, while from the hands and feet the epithelium is shed in huge scales. The disease used to be considered an affection *sui generis* till Buchanan Baxter * showed that while it may occur as an independent disease it often follows other skin affections.

The onset of pityriasis rubra is usually more or less sudden, and is accompanied by some malaise, though not of a very marked character. The eruption is symmetrical in distribution, and may select any part of the skin for its point of attack; most frequently, however, it begins on the limbs and chest. Red patches appear, which spread rapidly at the edge, and coalesce with other patches so as to involve the whole surface of the skin literally from head to foot. The affected skin is uniformly bright scarlet in hue, but quickly becomes covered with thin wafer like scales which overlap each other like slates on a roof, but are never fused together into crusts. There is very seldom any discharge on the surface of the skin, and when exudation does take place the fluid is thin and watery like sweat (of which, indeed, it chiefly

* *Brit. Med. Journ.*, 1879, vol. ii.

consists), and does not stiffen linen. The scales are easily detached, and when they separate, the skin underneath is seen to be intensely red. Although there may be considerable tension there are usually no fissures. There is, as a rule, no itching, but this depends on the temperament of the patient, and in some cases this symptom is very pronounced. Over the whole surface of the skin an unpleasant feeling of stiffness, heat, and tenderness is often experienced. The disease usually spreads with great rapidity, the whole body being invaded in a few days; sometimes, however, it remains confined to certain regions and never becomes universal.

Pityriasis rubra may develop as an entirely independent affection, or, as already said, it may be a sequel of some other disease of the skin; in other words, exfoliative dermatitis may be either primary or secondary.* In the primary form the eruption first appears as a vivid red blush, which spreads so rapidly that it becomes universal in a few hours. There is no infiltration or thickening of the skin. Desquamation is most abundant, the whole skin seeming to be shed in some cases. The affection is extremely rare; I have seen only three or four cases. The secondary form may start from erythema multiforme, especially when the lesions—such as erythema iris—are definite and characteristic. Gradually one sees the erythematous elements subside or disappear, their places being taken by patches of redness, which spread over the whole body, and assume the aspect of pityriasis rubra, as described above. Again, one meets with cases presenting all the characters of typical eczema, with large discharging

* In a series of twenty-one cases published by Stephen Mackenzie (*Brit. Journ. of Dermatol.*, July, 1889) eleven were primary and ten secondary in origin, but my own experience is that the latter is far more frequent than the former.

surfaces and other distinctive lesions, in which a sudden change comes over the face of the disease, the whole skin becoming crimson sometimes in a single night, and all the eczematous appearances fading away, or being swallowed up in pityriasis rubra. Psoriasis, again, with its characteristic lesions in typical positions, may suddenly lose all its distinctive features, and become transformed into pityriasis rubra. Lichen ruber planus and dermatitis herpetiformis may undergo a precisely similar metamorphosis. Examples of all these transformations have come under my own notice. The event is probably more frequent after psoriasis than any other affection. Sometimes the transformation is attended with considerable constitutional disturbance, but this is by no means invariable. However it may begin, pityriasis rubra varies in duration and intensity, sometimes not affecting the general health to any perceptible extent, and passing away in a few days or weeks; sometimes lasting for years, and leading to death from exhaustion or some intercurrent disease. In the cases in which recovery takes place relapse is frequent. On the other hand, cases in which the disease has lasted for many years may take a sudden turn for the better, and recover; the patient is, however, always liable to subsequent attacks. In primary pityriasis rubra the health is not, as a rule, affected so early as in the secondary form of the affection. The disease is rare in children, but is much more severe and fatal in them than in adults. It may be remarked that the mental faculties are sometimes disordered in cases of pityriasis rubra.

A particular form of the disease affecting newborn infants has been described by Ritter, of Prague,* Kaposi, and other observers; but I have

* *Vierteljahr. f. Derm. u. Syph.* 1879, Heft. 1.

never myself seen a case answering to their descriptions, nor, so far as I know, has any such case been reported in England. The affection begins within the first fortnight—seldom beyond the first month—of infancy. The lesions are those of pityriasis rubra, sometimes with the flaccid bullæ of pemphigus foliaceus with crusts and small fissures about the corners of the mouth, the openings of the nostrils, the commissures of the eyelids and the anus. There is no constitutional disturbance, but in one-half of the cases the child dies of marasmus. What appears to have been a contagious form of pityriasis rubra has been described by Savill,* one hundred and sixty-three cases having occurred in the Paddington Poor-Law Infirmary between July and October, 1891. The eruption appeared in the form of a thickly-set papular rash, with general congestion and thickening of the skin. Vesicles occasionally formed. Independent patches formed in different parts of the body, and in some cases the whole skin became crimson, inflamed, and painful. A sickening odour was perceptible. The epidermis was soon shed in small dry scales, or in large sheets, from the hands and feet. There was great constitutional disturbance, and thirty of the sufferers died from increasing weakness and coma. The disease ran a more or less definite course, lasting from seven to eight weeks. The affection was clearly contagious, though its epidemic prevalence is difficult to account for. Similar outbreaks on a smaller scale have been recorded.

The etiology of pityriasis rubra is very obscure. The primary form often follows a chill, but in many cases no cause can be discovered. The male sex shows a somewhat greater proclivity than the female, and

* *Brit. Journ. of Dermatol.*, February and March, 1892.

the disease is more common in middle life than at any other period, though no age is exempt. In the secondary form the cause of the transformation is unknown. In some cases it appears to follow an injury to the skin. Thus, I have known pityriasis rubra develop suddenly after a burn, and spread over the whole body in a single night. In other cases it seems to be the result of the remedies used in the treatment of the pre-existing skin affection. In a healthy girl under my own care for chronic eczema, treatment by chrysophanic acid was followed by diffuse redness of the skin, which gradually assumed all the characters of pityriasis rubra. She has now been under treatment for nearly two years, and at one time her health was almost completely broken down; but she is now recovering. Pityriasis rubra has also been known to follow the use of mercury and other drugs. Crocker * maintains that there is a close relationship between rheumatism, especially the acute form, and gout, and pityriasis rubra; such an association having existed in eleven out of eighteen cases which he has had the opportunity of observing. Jadassohn † has found tuberculosis (enlargement of the superficial lymphatic glands, and occasionally tubercle of the internal organs) associated with pityriasis rubra in a certain proportion of cases. Even if it be admitted, however, that rheumatism and tuberculosis may be predisposing causes, we are still in the dark as to the factors which determine the onset of the disease. It is possible that the absorption of poisonous products from the previously-existing skin lesions might explain the development of secondary exfoliative dermatitis; but I am more inclined to believe that it will be found a result of parasitic invasion. Such

* Congrès Internat. de Derm. et de Syph., tenu à Paris en 1889. Paris, 1890, p. 68.

† *Arch. f. Derm.*, No. 6, 1891, and Nos. 1, 2, and 3, 1892.

evidence as we have on this point, however, is scanty and doubtful. Risien Russell * found a specific diplococcus in the serum and the blood, and also in the skin in some of Savill's cases. Petrini, however, failed to find micro-organisms either in the scales or in the blood.†

The prognosis depends chiefly on the extent to which the internal organs, especially the kidneys, are diseased. In a considerable proportion of cases pityriasis rubra proves fatal, especially in children; and however mild the symptoms may be, it is never safe, even if the patient appear to be on the way to recovery, to predict a favourable termination, as at any moment a turn for the worse may occur. Even after complete recovery relapse may take place.

Pathologically, the process is one of inflammation of the skin, at first superficial, later, extending through the whole depth of the integument. The changes found on microscopic examination are simply those characteristic of chronic inflammation, varying in degree according to the length of time the process has lasted. They are present in all the layers of the integument. According to Petrini,‡ the essential lesion is in the papillæ. Besides hyperplasia of cells, there is in the earlier stages of the process a proliferation of round cells in the interior of the papillæ, around the vessels and in their walls. A similar proliferation is seen along the vessels of the cutis. This leads to sclerosis of the papillæ, and especially of their vessels, and in time to sclerosis and obliteration of the whole vascular apparatus of the skin, with granular and fatty degeneration of the neighbouring tissues. The glands undergo atrophy; the sebaceous

* *Brit. Journ. of Dermat.*, April, 1892.

† Congrès Internat. de Derm. et de Syph., tenu à Paris en 1889. Paris, 1890, p. 48.

‡ Loc. cit., p. 51.

glands apparently becoming transformed into fat. The redness of the skin is due to the stasis of the blood in the vessels; and the ceaseless shedding of the cuticle is an indication of the degree to which the nutrition of the skin is impaired.

As regards diagnosis, pityriasis rubra is distinguished from other affections of the skin by (1) the vivid redness of the eruption, (2) its rapidity of diffusion, (3) its universality, (4) the constant and profuse desquamation, and the characteristic papery scales and sheets of epidermis, and (5) its tendency to cause serious impairment of health and even death. From psoriasis it is distinguished by its rapid spread, and the involvement of the whole area of the skin. Lichen ruber planus is seldom universal, and does not spread so rapidly; moreover, it begins in characteristic papules. From eczema it is differentiated by the absence of exudation and crusts. From pemphigus foliaceus, which it sometimes resembles in other respects, pityriasis rubra can be discriminated by the absence of the loose bullæ and foul-smelling discharge characteristic of that affection. Moreover, the general symptoms are more severe in pemphigus foliaceus than in pityriasis rubra, and the disease is less amenable to treatment.

In the treatment of pityriasis rubra the first thing to be done, if the disease is consecutive to some other cutaneous affection, is to discontinue the use of chrysarobin or whatever other drug may seem to be the determining cause of the attack. Every effort must be used to keep the patient's health up to the highest standard. The digestion and bowels must be carefully attended to; nervous excitement must be as far as possible subdued by appropriate remedies. If the symptoms are acute, antimony, administered in the manner already described, will be found useful. In cases of a chronic type arsenic may do good, but it

should never be given if the inflammation is at all intense. Stimulants should be forbidden, unless definitely indicated by weakness of the heart's action. The strength must be maintained by nutritious food, and the least appearance of wasting should be the signal for cod-liver oil. Sufferers from pityriasis rubra are always unduly sensitive to cold, and, indeed, a chill is very likely to aggravate the symptoms during the course of the disease, or to bring on a relapse during convalescence or after recovery. It is of the greatest importance, therefore, that exposure to cold should be most carefully avoided. In severe cases the patient should be kept in bed, and even in apparently slight cases he should stay indoors. Locally, the indications are to soothe irritation, disinfect the skin, and keep the affected parts warm. Tepid bran or alkaline baths are usually comforting. Tarry preparations are especially useful. The liquor carbonis detergens freely diluted with water, or very weak creoline, or oil of cade ointment may be applied. Carbolised oil (1 in 20) is often beneficial, but in using antiseptic applications care must be taken lest irritation be caused. Mercurial preparations should not be employed, as they are likely to aggravate the disease. For protective purposes the skin may be freely dusted with starch and oxide of zinc powder, and then covered with cotton-wool, or it may be wrapped in bandages steeped in calamine liniment.

In the case of infants special precautions must be taken against cold. The skin should be smeared with fatty substances and covered with cotton-wool till the epidermis has been reproduced. Special attention should also be paid to the nourishment of the patient.

Pityriasis rubra pilaris.—Pityriasis rubra pilaris is an anomaly of cornification primarily affecting the hair follicles, at the orifices of which

characteristic papules form, and secondarily leading to inflammatory changes of the dermic structures. There has been a good deal of discussion as to the relation of the affection to lichen ruber acuminatus. Kaposi thinks the two conditions identical, and I agree with him. What may fairly be called a test case was shown at Budapest to some members of the Congress of Dermatology, held at Vienna in 1892. The patient was exhibited as an illustrative example of lichen ruber acuminatus, and the affection was unhesitatingly pronounced to be pityriasis rubra pilaris by the French dermatologists present. Neumann, however, still maintains that lichen ruber acuminatus and pityriasis rubra pilaris are two distinct affections.*

The disease usually begins, so to speak, in disguise. Sometimes it appears in the form of scaly patches resembling psoriasis on the palms and soles; sometimes as a dry eruption, covered with eczematous-looking crusts, on the scalp and face. Soon, however, the characteristic papules become visible at the orifices of the hair-follicles. These papules are small, red, hard, dry, harsh to the touch, and more or less conical in shape, each having a single atrophied hair in the centre surrounded by a kind of horny sheath which penetrates into the follicle. The projection of these tiny, cone-shaped papules is sufficient to roughen the surface of the integument, so that it feels like the skin of a newly plucked fowl (Besnier). The papules are distributed on the limbs, especially where the hair is most abundant, that is to say, on the backs of the fingers (particularly the first and second phalanx), on the outer aspect of the fore-arms, on the outside of the thighs, and on the buttocks. They are also—though less frequently—seen about the elbows and knees. On the trunk they chiefly affect the waist

* *Arch. f. Derm. u. Syph.*, 1892, Heft. 1.

and the lower part of the belly. They are at first discrete, but as they increase in number they tend to become confluent, and thus form patches. In these patches the distinguishing characters of the individual papules are lost in a pale yellowish-red surface, covered with papery scales, or with small adherent ones resembling mica, which, when situated in the positions most affected by psoriasis, may closely simulate the lesions of that disease. At the edge of the patches the characteristic conical papules are always to be seen.

The three marked objective features of pityriasis rubra pilaris are: (1) the "goose-skin" appearance and grater-like feeling caused by the conical papules at the orifices of the hair follicles; (2) the desquamation; (3) the redness of the surface. The natural folds of the affected parts of the skin are always exaggerated. The eruption often spreads over a large part of the body, and in some cases becomes universal. The lesions present certain differences of appearance, according to their situation. On the *face* they are often of a seborrhœic type, a red base being covered with adherent crusts; sometimes they have the characters of pityriasis rubra. They are always dry, and there is usually considerable tension of the skin, which may give rise to ectropion of the lower lid. On the *scalp* they are generally of seborrhœic type; the hair is often matted together by firm crusts. The *nails* become soft, greyish in colour, and marked with longitudinal yellow stripes. On the *hands*, however extensive the eruption may be, small blackish cones can always be seen around the hair follicles.

Beyond a trifling amount of itching, which, moreover, is by no means a constant feature, there are no subjective symptoms in pityriasis rubra pilaris. The general health is never affected. The course

of the disease is slow, and subject to sudden remissions and exacerbations without obvious cause. Even when the affection appears to be completely cured, relapse may occur at any time.

The diagnosis is almost always easy. The characteristic conical papulé, with its single hair, plugging the mouth of a follicle, is conclusive as to the nature of the disease. The best place to look for the lesions is on the backs of the fingers; they can be picked off, little pits being left which give the skin a cribriform appearance. The absence of any attendant disorder of the general health distinguishes the affection from other forms of exfoliative dermatitis. From lichen ruber planus it is differentiated (*a*) by the absence of itching; (*b*) by the absence of impairment of nutrition; and (*c*) by its resistance to the therapeutic action of arsenic.

As regards the pathology, Jacquet has shown * that the conical papule, which is the essential lesion of the disease, is caused by exaggerated cornification of the epithelial wall of the infundibulum of the hair follicle. The plugging of the follicle is followed by inflammatory lesions in the dermic structures.

The treatment of pityriasis rubra pilaris is unsatisfactory. Arsenic appears to be contra-indicated; but Brocq, while admitting that the drug cannot be relied on, recommends arseniate of soda in gradually-increasing doses.† Sudorifics are clearly indicated by the dryness of the skin; for this purpose pilocarpine or jaborandi is likely to prove useful, or, as suggested by Brocq, violent exercise may be indulged in, of course with due regard to the special circumstances of each case. Locally, oil of cade may be applied. Brocq speaks well of pyrogallic acid. If inflammation runs high, soothing applications are required. Sebaceous

* Quoted by Brocq; op. cit., p. 644.
† Op. cit., p. 644.

concretions on the face or scalp should be removed in the usual way.

Pityriasis rosea.—Pityriasis rosea is an inflammatory affection, the essential lesion of which is a pink rash, very slightly raised, and thinly covered with small scales. The eruption appears first as a single patch situated on the trunk, the neck, or the arm.* It is oval or circular in shape. Its edges are bright red in colour, somewhat raised, and covered with fine adherent scales; the centre is of a duller red-brownish tint, and slightly depressed. The patch spreads at the edge, fading in the centre as it does so. In a week or so this herald patch is followed by the appearance of a number of small bright red spots, which soon grow into patches. These are of two types: one small, irregular in size, with an indistinct border and a scaly wrinkled surface; the other larger, rounded in outline, with a well-defined border like the herald patch, and standing out among the other patches like medallions (Brocq). Lesions of the former variety are sometimes termed *maculate*, while those of the latter are known as *circinate*. Both forms usually coexist, the circinate lesions being scattered among the others, which are more numerous. As the circinate patches spread at the edge the centre undergoes involution, and rings, red and scaly at the circumference and fawn-coloured in the middle, are formed. In course of time the circle is broken by partial disappearance of the border, and segments remain which, meeting similar relics of other patches, form wavy lines partly enclosing fawn-coloured areas. As the eruption fades at one spot it comes out at another, and at a given moment all stages of the process may coexist. Itching is not generally troublesome; but owing to individual differences in the

* Brocq, op. cit., p. 625.

irritability of the skin this rule is subject to numerous exceptions. The eruption usually first shows itself on the belly, but it may begin on the chest, the face, or the arm. It spreads rapidly, so as often to cover the trunk, the face, and the limbs in two or three weeks. It is generally thickest on the buttocks and abdomen, and it seldom extends below the elbow or the knee. Occasionally, however, it is universal. The appearance of the eruption is sometimes preceded or accompanied by slight constitutional disturbance. The process terminates in spontaneons resolution within a period varying from a fortnight to two months.

Of the etiology of pityriasis rosea little can be said. It may occur at any age, but is most common in the young. Neither sex, condition of life, nor season has any influence in its production. It does not appear to be contagious. It has been thought to be due to a specific fungus, the microsporon anomœon (Vidal); but the very existence of such an organism lacks confirmation, and in any case its presence on the epidermis would be no proof that it had any causal connection with the disease.

The diagnosis is as a rule easy, owing to the well-marked objective features of the affection. The characteristic single patch which I have called the "herald"; the pale red tint, slight scaliness, and want of elevation of the patches; the mingling of maculate and circinate varieties of lesion; and their spontaneous involution, make up a distinct clinical entity which can hardly be mistaken for anything else. From psoriasis pityriasis rosea is differentiated by (*a*) its slight scaliness; (*b*) the absence of the characteristic hyperæmic spots on the red surface underneath the scales; (*c*) by its showing no preference for the situations most liable to be attacked by psoriasis. From syphilitic lesions resembling it more or less closely in appearance it can be distinguished by the absence

of a history of infection and of other concomitant signs of venereal disease. From seborrhœa corporis it is differentiated by (*a*) the absence of the characteristic initial papules; (*b*) by its distribution, seborrhœa corporis affecting almost exclusively the middle of the chest and back and always avoiding the limbs; and (*c*) by the fact that it disappears spontaneously in a few weeks, while seborrhœa corporis if untreated will last for years. From tinea circinata pityriasis rosea is distinguishable by (*a*) the large number and wide distribution of the lesions; and (*b*) by the absence of the tricophyton, which is the cause of the former.

The prognosis of pityriasis rosea is always favourable, spontaneous resolution, as already stated, taking place in a few weeks.

In the way of treatment, all that is required is to soothe any irritation there may be. For this purpose liquor carbonis detergens, or any of the antipruritic remedies already mentioned, may be employed. If the eruption is very extensive, a tepid bran or alkaline bath will be useful. No internal medication is required.

CHAPTER XIII.

PSORIASIS.

Psoriasis is an affection of the skin characterised by flat dry patches of varying extent, covered with white, silver-grey, or asbestos-like scales (Plate V. Fig. 2). There is no exudation, and consequently there are no crusts; the degree of scaliness varies from a thin film to a dense heaped-up mass. On removing the scales, which are, as a rule, tolerably adherent, a smooth, shining, hyperæmic surface is exposed, dotted here and there with deep red spots. This surface, which is the base of the lesion, though red, is not raw, and the tint varies from bright red in recent patches to a duller tint in those of older formation. The bright red spots, which can always be seen with the help of a lens, are the tops of the hyperæmic papillæ; these bleed very readily on being touched. The typical lesion —or what may be termed the pathological unit— of psoriasis is a scaly patch, rounded or irregular in shape, with a sharply-defined border standing out slightly but distinctly on the surface of the skin, with a hyperæmic base underlying the covering of scales. When the disease is spreading, the patch is surrounded by a narrow zone of redness, but this is wanting when the process is inactive. The scales are of a dirty white colour on the surface; but on scraping away the uppermost layers, those underneath have the appearance of frosted silver.

The eruption first shows itself in the form of papules of the size of a pin's head; these are at first red, but they soon become white as the scales form. Besnier states that he has seen cases in which the appearance of scales was the first appreciable

change. Whether scaliness precedes hyperæmia or *vice versâ* is a point of no clinical importance. It is certain that even when no scales are visible on the red ground of the initial lesion, they can be brought into view by gently scratching the surface. The papules spread in a centrifugal direction and form patches, which are usually roundish or oval in outline when small, becoming more irregular as they get larger. After attaining a certain size they may remain stationary for a long time, and then gradually disappear; or they may continue to spread, and, becoming confluent, cover large areas of skin. The differences of aspect presented by the lesions at various stages in the evolution of the process have been dignified by distinctive names. Thus, the initial white scaly specks are sometimes spoken of as *psoriasis punctata;* when the lesions are somewhat larger, so as to resemble splashes of mortar or drops of wax, the appearance is indicated by the name of *psoriasis guttata;* when still larger, and rounded like coins, we have *psoriasis nummularis*, and so on. Other names sometimes used in describing the lesions of psoriasis are intended to denote not so much the shape as some other prominent characteristic. Thus, when the disease has involved extensive surfaces the skin often presents a peculiarly harsh, dry, thickened, and cracked appearance; this is sometimes called *psoriasis inveterata.* In other cases the scales may be heaped up into cone-shaped masses, arranged in layers forming concentric rings, and resembling rupial scabs; to this condition the term *psoriasis rupioides* has been applied by McCall Anderson.

Sooner or later the patches undergo involution. They first begin to fade in the centre, leaving rings with a gradually narrowing border; as the border itself in turn disappears at different points,

segments of varying length remain, which, with similar relics of other patches, form wavy lines, festoons, and sometimes tracery of the most fantastic pattern. On the trunk it not infrequently happens that as involution goes on at the centre, the patch continues to spread at the edge; the spectacle is thus presented of a circle steadily increasing in diameter, the circumference being formed by a border which, while constantly advancing, never gains in width. To this condition the term "Lepra" was formerly applied, but apart from the possible confusion with the more formidable disease designated by that name, there is no advantage in using a special term to denote what is merely an accidental and evanescent appearance.

The lesions of psoriasis disappear completely, leaving behind only some redness which soon dies away. In cases in which the process has persisted for a long time, a deep brown stain often remains; pigmentation is particularly likely to occur when arsenic has been freely used in the treatment. In rare instances superficial atrophy may mark the site of the patches.

Psoriasis is nearly always symmetrical in its distribution. It particularly affects parts where the skin is thick and frequently stretched, and where it is exposed to friction by the clothes, etc. Its favourite and almost invariable starting-points are the tips of the elbows and the fronts of the knees; it shows a special predilection for the extensor surfaces of the limbs. Next to these comes the hairy scalp; then the trunk, especially on its dorsal aspect. The face is rarely attacked except in young people and in inveterate cases; the palms of the hands and soles of the feet still more seldom. As regards the proportion of cases in which these various parts are severally or jointly invaded, some idea may

be gained from the following statistics given by Nielsen.* In a series of 862 cases of psoriasis the trunk, the extremities, and the head were all affected in 489; the trunk and extremities in 197; the extremities alone in 113; the extremities and the head in 53; the head alone in 5; the trunk and the head in 4; the trunk alone in 1. These figures may be taken as representing the area of territory invaded by the disease when it is of sufficient severity to induce the patient to seek medical advice; doubtless, however, there are very many cases that never come under treatment, and in a considerable proportion of these the disease is probably confined to the extremities and the scalp.

The lesions of psoriasis are more or less modified in appearance by the anatomical structure or other peculiarities of the regions which are the seat of them. On the scalp they are generally met with as scurfy patches, yellowish or even brownish in colour, the red ground of the hyperæmic base showing here and there, especially about the margin of the hair; it often extends on to the forehead, which it seems to bind with a narrow circlet. Sometimes the scales are piled on the scalp in thick, firm masses like dry mortar, in which the hair is embedded. The disease does not usually interfere with the growth of the hair; it is only in cases of exceptional severity that it is likely to cause baldness. Psoriasis seldom attacks the hairy parts of the face.

On the scrotum the skin is often red, swollen, indurated, and fissured, a thin secretion sometimes oozing from the cracks. On the palms and soles the scales are usually heaped up into thick masses, which preserve the characteristic sharply-defined border;

* "Klinische und aetiologische Untersuchungen über Psoriasis." *Sonder-Abdruck aus Monatsh. f. prakt. Dermatologie*, Bd. xv. Nos. 7 and 8.

the lesions in these situations show little disposition to crack. On the nails the disease is sometimes situated in the matrix, in which case the nail becomes dull and transversely furrowed. As the scales are more and more heaped up underneath it, the nail splits and is pushed out of its bed. In other cases psoriasis of the nails shows itself as a discoloration about the free border; this gradually extends downwards to the root, the nail becomes thickened, but there is no soreness of the matrix. Other modifications of the appearances characteristic of psoriasis may be produced by causes of various kinds. Thus, previous treatment may have removed the scaliness, or the same result together with other lesions may be produced by scratching. It is to be noted also that when the process is very acute in character the scales are often shed very rapidly, and there may be nothing to be seen but a red, inflamed surface.

The subjective symptoms of psoriasis are seldom very pronounced. Itching is neither so constant nor so prominent a feature as it is in eczema; indeed, in many cases there is little or no irritation. No rule can, however, be laid down on this point as patients vary greatly in their sensitiveness to itching; all that can be said definitely is that in the acute forms of psoriasis itching is generally more marked than in cases of the ordinary type. In the more chronic forms, especially in patches about the elbows and knees, the itching is often so entirely absent that the disease may exist for a long time without the patient's being aware of it. There is seldom any pain in chronic cases, except when the skin is fissured; this is especially apt to occur over what may be called the "bathing-drawers area," where the skin sometimes cracks every time the patient sits down. In very acute cases the skin may be the seat

of pain from tension with heat and tenderness. In a certain proportion of cases of psoriasis there are, according to some French writers—notably Bourdillon* and Besnier,†—pains about the joints resembling those of rheumatoid arthritis. Besnier gives the proportion of cases in which this complication occurs in his experience as 5 per cent. I cannot say that I have observed the relationship between psoriasis and rheumatoid arthritis which is here implied, nor do Nielsen's careful statistics lend countenance to such a view.‡

The course of the disease is essentially chronic, but it is subject to sudden exacerbations, during which it spreads over large areas. These exacerbations sometimes appear to be due to the influence of a particular diet, change of climate, or mental shock; in other cases they cannot be attributed to any definite cause. It is impossible to predict when or in what circumstances such an outburst may occur; some patients are attacked regularly once or twice a year, others at longer or shorter intervals. The disease if left to itself may last for months or even years, with intermissions of variable duration, during which it may entirely disappear. More frequently, however, patches remain on the elbows and knees in a state of inactivity until a fresh exacerbation occurs. Although a very large part of the cutaneous surface may be attacked, psoriasis is never absolutely universal. However completely psoriasis may disappear, recurrence is merely a question of time. Cheloid, warts, and even carcinoma may develop on the site of the lesions, or the disease may become transformed into pityriasis rubra. The

* "Psoriasis et Arthropathies." Thèse de Paris, 1888.

† French translation of Kaposi's "Maladies de la Peau." 2nd ed., vol. i. p. 553, *et seq.*

‡ Loc. cit., p. 15.

affection has generally little or no effect on the general health; indeed, Hebra considered that a certain standard of health is necessary for its development, and in fact patients have generally a robust appearance, their complexion being particularly clear and ruddy. In further confirmation of this it is to be remarked that if the general health is in any degree impaired the psoriasis tends proportionately to subside. Thus, during a severe attack of fever the patches often fade, breaking out again, however, as convalescence is established.

As regards the etiology of psoriasis very little is known. It is not common in early infancy, and it rarely begins after the age of fifty; it is on the whole more common in youth than in later adult life. Statistics seem to show that men are somewhat more subject to it than women. Neither rank in life nor occupation has any influence in the production of the disease. It is to a certain extent hereditary, and Brocq* says that it is not uncommon to see gout or some form of neurosis replaced by psoriasis in one member of a family subject to the former complaints. Some dermatologists hold that gout is an important factor in a certain proportion of cases, and one even hears of "gouty psoriasis" as a special form of the disease. To me there appears to be no evidence for this hypothesis. Season seems to have a certain influence, not so much in causing the disease as in increasing its intensity; thus the subjects of psoriasis are as a rule more liable to exacerbations in the spring and the autumn than at other seasons; recent cases, however, are often worse in the winter than at any other time. Polotebnoff has endeavoured to show that psoriasis is a neurosis of the skin; from an analysis of 67 cases he affirms that headache or other nervous disorder is present either in the patient

* Op. cit., p. 702.

himself or in other members of his family in a large majority of cases.* It is certain that psoriasis often follows nervous shock, mental emotion, or depressing influences, such as insufficient nourishment, and in women child-birth or suckling. It also sometimes follows an abrasion or other injury of the skin, or even the irritation caused by the contact of clothes; it is occasionally one of the sequelæ of vaccination, and it has been known to follow an attack of erysipelas or scarlet fever. There can be no doubt, however, that a special predisposition is required for the development of the disease, and the causes that have been enumerated are probably only the immediate determining factors which set the process in motion at a given time. Lang of Vienna † has attempted to show that psoriasis is a parasitic disease caused by a specific organism (*lepocolla repens*), but this supposed fungus has since been demonstrated by Ries to be an artificial product. Destot, however, succeeded in producing the lesions of psoriasis on his own person by experimental inoculation with scales from a recent case of the disease; and at the International Medical Congress held at Copenhagen in 1884 Unna reported a case in which the disease appeared to have been communicated to three children by a nurse. A similar case came under the observation of Nielsen. Other cases in which there is *primâ facie* evidence of the transmission of psoriasis from one patient to another have been recorded by M'Call Anderson, ‡ Aubert, § Augagneur, ‖ and others.

Race and climate have both a certain influence in the production of psoriasis. It is frequent among

* *Erganzungsheft d. Monatsh. f. prakt. Derm.*, 1891.
† Volkmann's *Samml. klin. Vorträg.*, No. 208.
‡ "Psoriasis and Lepra," p. 37. 1865.
§ Quoted by Nielsen, loc. cit.
‖ Ibid.

Jews, and rare among negroes. It is relatively common in northern latitudes, and rare in tropical climes.

There has been much debate as to the pathology of psoriasis, some considering the process to be essentially inflammatory, others a hyperplasia of the rete, and others again a keratolysis or anomaly of cornification. Whatever may be the precise mode of origin of the process, it has been shown by Robinson of New York and Crocker that overgrowth downwards of the interpapillary cones of the rete takes place with œdema and exudation of leucocytes in the papillary layer. The epidermic horny layer and the papillary layer are immensely hypertrophied; the stratum lucidum disappears; no eleïdin is to be seen, and the cornification of the epidermic cells either does not take place at all, or very imperfectly. According to Audry,* the absence of eleïdin, together with the defective cornification of the epidermic cells, is the essential pathological feature of psoriasis. The characteristic silvery appearance of the scales is due to the entrance of air within and between them. The overgrowth downwards that has been referred to, gives rise to an appearance which, on microscopic examination, somewhat resembles that of epithelioma; and in fact, as has been stated, psoriasis occasionally undergoes a malignant transformation.

The diagnosis of psoriasis in well-marked cases presents no difficulty. The patches with sharply defined border, covered with imbricated silvery scales; the bright-red points on a hyperæmic surface, bleeding easily when touched, which are exposed by removal of the scales; the absence of exudation at any period; the symmetrical distribution of the lesions and their predilection for the extensor surfaces of limbs, together with the unimpaired health and

* *Ann. de Derm. et de Syph.*, No. 4, April, 1893.

robust appearance of the patient, make up a clinical picture which can hardly be misinterpreted. In doubtful cases, the fact of the eruption having first appeared on the elbows and knees is almost conclusive, but if this element in the history be wanting, it is sometimes impossible to be sure of the nature of the disease. The affections that are most likely to be confounded with psoriasis are eczema, lichen ruber planus, lupus erythematosus, pityriasis rubra, and syphilis, secondary and tertiary.

Eczema is distinguished from psoriasis (*a*) by its distribution—it prefers the flexures of joints; (*b*) by the initial lesion—it generally begins in vesicles grouped on an inflamed base; (*c*) by the serous discharge, which is its characteristic feature; (*d*) by the ill-defined margin of the patches diseased, fading insensibly into healthy skin; (*e*) by the crusts, which are as characteristic of eczema as scales are of psoriasis. Less distinctive, but still important, features of eczema as compared with psoriasis are itching, which is at once more violent and more constant in the former than in the latter, and the muddy complexion, which often forms a marked contrast to the ruddy cheek of the subject of psoriasis. On the scalp, seborrhœic eczema almost always covers the whole surface, and often spreads on to the face and behind the ears to the neck; psoriasis, on the other hand, generally occurs in patches and ends abruptly at, or very slightly beyond, the margin of the hair. Another point of difference is that while seborrhœic eczema, as a rule, spreads downwards from the head, psoriasis almost invariably spreads upwards from its favourite situations. In certain very chronic forms of eczema, when there are only a few scattered patches with no history of an eruption on the elbows or knees, or of "weeping," the diagnosis may be all but impossible. Even in such cases,

however, the intensity of the redness, if the affected surface be at the same time dry, may be some guide. As in eczema, any marked degree of hyperæmia is pretty sure to be accompanied by exudation. It may be well also to recall here that by gentle scratching the characteristic scales of psoriasis can often be brought into view when previously invisible.

Lichen ruber planus is not likely to be confounded with psoriasis, except in the papular stage, when it sometimes presents an appearance resembling that described as psoriasis guttata. The former is, however, distinguished from the latter (*a*) by its preference for the flexor aspects of the wrists and knees; (*b*) by its characteristic shining smooth papules and the absence of scales; (*c*) by the bluish-red tint of its ground as contrasted with the bright red of psoriasis; (*d*) by its mode of extension, a lichen patch being formed by the aggregation of many papules, while psoriasis spreads at the edge. In doubtful cases careful search should be made over the whole body for the typical lesions of either disease; a single characteristic patch will settle the question.

Lupus erythematosus usually affects the cheeks, a part generally spared by psoriasis. In the former, moreover, scales are not abundant; the edge of the patch is more raised than in psoriasis, and the plugs in the orifices of the sebaceous ducts form a very distinctive feature. Further, there may be scarring in the patch and atrophy of the ears.

Pityriasis rubra is differentiated from psoriasis (*a*) by its rapid development; (*b*) by the fact that it is almost always universal, psoriasis hardly ever being so; (*c*) by its thin, wafer-like scales, through which the reddened skin shows distinctly.

As regards syphilides, the only trustworthy means of distinguishing them from psoriasis lies in the history, in the simultaneous presence of other lesions

of skin, glands, and mucous membrane, and in concomitant cachexia. Syphilis has been justly called the "great imitator," and there is, perhaps, no dermatologist who has not been led into errors of diagnosis by it; this can only be avoided by basing one's judgment on a comprehensive view of all the details of each case.

The prognosis in psoriasis is favourable as far as any particular attack is concerned. By appropriate treatment the lesions can almost always be made to disappear for a time. Recurrence, however, after a longer or shorter period of complete or comparative freedom from the manifestations of the disease is the rule.

Psoriasis must be treated hygienically, constitutionally, and locally. Attention must be paid to the clothing so as to avoid irritation of the skin, interference with perspiration, and chilling of the surface. Bulkley * says he has repeatedly seen such chilling followed by an outburst of the disease in a previously healthy person, and also by returns of the eruption. A warm and equable climate has often a most beneficial effect on psoriasis; and Schutz† has reported two very severe cases of generalised psoriasis in which spontaneous cure always took place on the patients exchanging their ordinary place of residence for a higher altitude.

Of internal remedies arsenic is on the whole the most effective in the majority of cases; it is not, however, well borne by all persons, nor by the same person at different times. It is contra-indicated when hyperæmia is very marked; in such cases it only does harm, intensifying the process, aggravating the itching,

* "Clinical Study and Analysis of One Thousand Cases of Psoriasis." Reprinted from the *Maryland Medical Journal*, September 19th, 1891, p. 14.

† *Arch. f. Derm. u. Syph.*, xxiv., 1892.

and actually causing extension of the disease. In chronic cases, however, arsenic is often undoubtedly of the greatest service. It may be given in the form of Fowler's solution, freely diluted, beginning with a dose of three to four minims thrice daily after meals, gradually increased up to ten, if no signs of intolerance manifest themselves. Kaposi gives arsenic in the form of Asiatic pills, each containing $\frac{1}{12}$ grain of arsenious acid. He begins with one pill thrice daily, gradually increasing the number to ten or twelve in the day, and continuing the administration, if necessary, for several months. If, after 500 or 600 pills have been taken, no decided improvement is observable, he considers that the drug has failed. It need hardly be added that during the administration of arsenic the effect should be carefully watched; gastric or intestinal irritation should be subdued by opium. As already said, when arsenic has been freely given, and especially if its administration has been long continued, deep brown pigmentation is left, not only at the site of the patches but over a more or less extensive area of skin. A peculiar thickening of the epidermis of the soles and palms is another occasional result of the prolonged use of arsenic in large doses. Hutchinson has described the development of corn-like projections which may occasionally become the seat of malignant disease as resulting from the same cause, in very exceptional cases. Arsenic is of no value in the prevention of recurrence. In acute forms of psoriasis, and in cases in which the subjective symptoms are very pronounced, I find antimony most useful. I give it in the form of vinum antimoniale, ♏v to ♏x, thrice daily. Phosphorus is also useful under similar conditions. Crocker speaks highly * of turpentine given internally, either in capsules or

* Op. cit., p. 234.

as an emulsion made by rubbing up oil of turpentine with mucilage of acacia. He begins with ℥x thrice daily after meals, increasing the dose by ℥v to ℥x up to ℥xxx. In order to minimise the risk of irritation of the urinary organs, barley-water should be taken freely during the treatment, and the last dose of turpentine should not be given later than 6 or 7 p.m. Crocker says that by this treatment the hyperæmia is reduced, the scales fall off, and the disease is cured in from two to three months. If symptoms of nervous disorder be present, nerve sedatives, such as bromide of potassium, bromide of sodium, hydrobromate of quinine, etc., may be useful; these and similar drugs are recommended as part of the regular treatment of psoriasis by those who hold that the disease is a neurosis. Sea-bathing is often markedly beneficial, doubtless from its tonic action on the general system. I have seen cases that have proved refractory to all other treatment quickly get well after a course of sea-bathing. Of the treatment of psoriasis by large doses of iodide of potassium, as recommended by Haslund, I cannot speak from personal observation. Whatever good effect it may have is probably to be attributed to the lowering effect of the drug on the general health, which, as already said, is often accompanied by a corresponding subsidence of the disease. Feeding with extract of thyroid gland has given encouraging results in some cases (Byrom Bramwell).

Passing next to the local treatment, the first thing to be done is to remove all scales, so that remedies may be applied directly to the affected part. For this purpose the free application of hot water and soft soap, more or less prolonged immersion in tepid water or an alkaline bath, or inunction with oil or vaseline, will be necessary, in order to soften and loosen the scales. Each patch must be dealt with separately, and the process of clearing the surface

must be thoroughly carried out. A solution of salicylic acid in spirit, of the strength of 6 per cent., well rubbed in, will be found effectual in removing the scales in old patches. When the scales have been entirely got rid of, the next step is to attack the seat of disease with antiparasitic remedies. Although, as already stated, the theory that psoriasis is of parasitic origin rests on a very slender foundation, it is a clinical fact that substances which have the property of checking the development of microbes are more useful than any other applications. The particular remedy required in any given case must be judged of by the degree of intensity of the process. As a general rule, it may be laid down that, as in eczema, soothing applications are indicated in acute, and stimulating remedies in chronic, forms. If hyperæmia is very marked, the surface should be covered with strips of linen steeped in calamine lotion, or smeared with olive oil or cold cream. Alkaline baths (five or six ounces of bicarbonate of soda in thirty gallons of water, at a temperature of about 100° F.) often give great relief. In less acute conditions mildly-stimulating remedies should be employed. Mercurial ointments of moderate strength will be found serviceable, but they should be applied only to a limited surface at a time. Tar may be applied in the form of cade oil or creoline ointment, or liquor carbonis detergens (ɱxx to ʒj of water). Resorcin (x—xx gr. to ʒj of lard) is a very useful application. The most rapidly-acting and efficient of all local applications, however, is chrysarobin. It may be used in the form of ointment (gr. xv—ʒj to ʒj). Unfortunately, there are several disadvantages attending the use of this substance, which considerably limit its practical usefulness. If employed without proper precautions, it dyes the skin, the hair, and the nails bright yellow; it discolours linen in the same way,

and the stain is not removed by washing, but is changed to purplish brown. A more serious drawback is the irritating effect of the drug on the healthy skin adjoining the diseased area; it may set up erythema of an acutely inflammatory form, with itching, swelling, etc. For this reason it is chiefly suitable for the limbs and parts of the trunk away from the neck and genitals; it must never be used on the face or head. In some cases chrysarobin may in this way determine the transformation of psoriasis into pityriasis rubra. The drawbacks attending the use of this powerful agent may be avoided by combining it with traumaticin, as suggested by Auspitz. This is made by dissolving ʒj of pure guttapercha in ʒx of choloroform; to this ʒj of chrysarobin is added. This preparation is, after the removal of the scales, painted over the affected surface, where it forms a thin varnish, which should be renewed every two to three days. Chrysarobin should never be used in cases in which marked hyperæmia is present. Pyrogallic acid, used in the form of an ointment (gr. x to gr. xxx to ʒj), is also often useful, but it must be applied only to a limited area at a time, as toxic effects may be produced by its absorption. Sulphur baths are often beneficial in chronic cases. The first, and perhaps the chief, effect is the softening and removal of the scales. The practitioner must then judge by the amount of hyperæmia present whether weak or strong local applications are required; if the latter are thought to be indicated, they must at first be used well diluted. The action of sulphur baths on psoriasis is no doubt mainly mechanical by removing the scales, but it is possible also that some further therapeutic effect is produced by the parasiticide action of the sulphur. The sulphur waters of Harrogate, Strathpeffer, and Luchon are

especially indicated in cases of chronic psoriasis. The waters of Aix-les-Bains, La Bourboule, and Royat are also sometimes beneficial, both applied externally and taken internally, owing to the arsenic which they contain. Even the "indifferent" waters of Bath and Buxton often succeed when others have failed. It is important to bear in mind that in chronic cases the patient must be urged to persevere in the treatment, no matter what drug is used.

CHAPTER XIV.

LOCAL INOCULABLE DISEASES.

This group of skin affections includes a number of widely different conditions which have this one feature in common, that the exciting cause of the disease is implanted in the integument from without, and there under favourable conditions reproduces itself and gives rise to local lesions without causing systemic infection. The agents which excite the disease are of parasitic nature, that is to say they are organisms that live at the expense of their involuntary host. They may conveniently be divided into (*a*) animal parasites, (*b*) vegetable parasites, and (*c*) other micro-organisms. In some of the affections described in the present chapter the exciting cause of disease is inoculable into the epidermis, in others into the true skin. The former will be dealt with first.

I. Animal Parasites.

A formidable list of the animal parasites that infest the human skin is given by Geber ; * of these, only the more common need be mentioned here. He divides the parasites into three classes : (1) those (called by him "stationary") whose habitat is almost exclusively the human skin ; including the sarcoptes scabiei hominis or itch-mite, the pediculus or common louse in its three varieties (*a*) head, (*b*) body or more properly clothes, and (*c*) pubic, or crab louse ; pulex irritans or common flea ; demodex or acarus folliculorum hominis (Fig. 4, c.). (2) Temporary or occasional

* Ziemssen's "Handbook of Skin Diseases."

parasites, which may be present either (*a*) in a sexually mature, or (*b*) in a larval condition. Among the former may be mentioned cimex lectularius or bed bug; dermanyssus avium or bird-mite; tabanidæ or horse-flies, etc.; among the latter, *cestodes*, such as cysticercus cellulosæ and echinococcus or bladder-worm; *trematodes* such as distoma hepaticum or liver-fluke; *nematodes* such as filaria medinensis (Fig. 4, G), filaria sanguinis hominis (Fig. 4, H), oxyuris vermicularis; and various flies (*muscidæ*) such as musca domestica, cadaverina, vomitaria, etc. (3) Accidental parasites, of which the most familiar is leptus autumnalis or harvest bug.

Scabies is an affection produced by the presence of the acarus or sarcoptes scabiei in the epidermis. It gives rise to lesions of an inflammatory nature, caused by the irritation of the parasite, together with others due to scratching. The female is the exciting agent in the initiation of the process; the function of the male being limited to the impregnation of his mate. When this has been accomplished the female penetrates into the deeper layers of the epidermis, where she deposits her ova. She first passes downwards through the horny layer and then by a wriggling movement pushes her way through the rete. In this manner she makes a tortuous burrow, the direction of which is indicated on the surface by a rough line, formed by the upheaval of the horny layer. At the point where she first enters the epidermis there is usually a vesicle which marks the situation of the mouth of the burrow. The average length of the burrow is from one-eighth to half an inch, but it may be a good deal longer. At different stages in the excavation of the burrow the acarus deposits an ovum, and also excremental matter. The acarus is always found at the blind end of the burrow. She lives as a rule about two months, during which she deposits some fifty ova, then

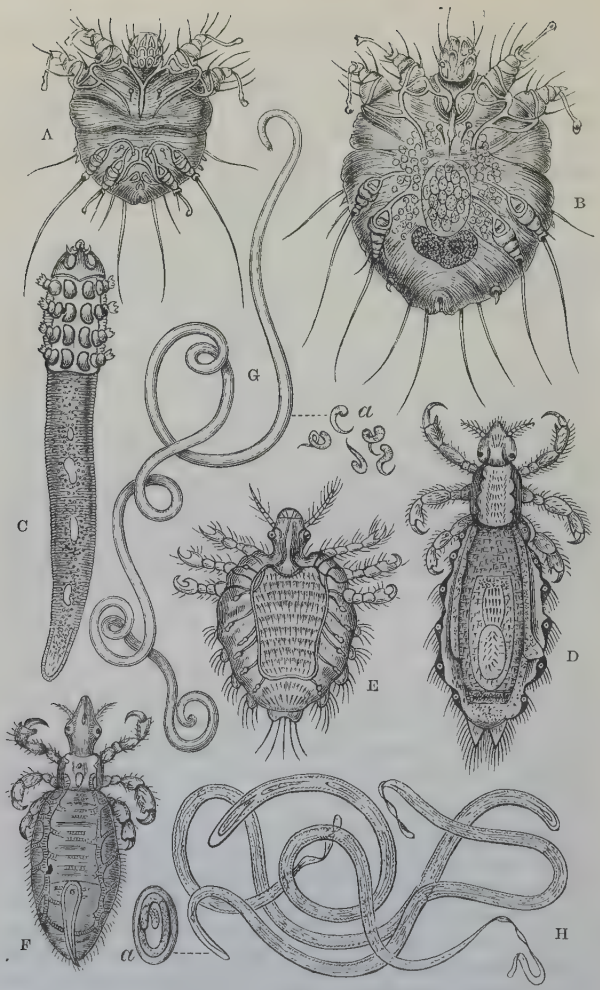

Fig. 4.—Animal Parasites.

A, Male acarus scabiei, × 100 diams. (*After Kaposi.*) B, Female acarus scabici, same enlargement. C, Acarus folliculorum, × 250 diams. (*After Kuchenmeister.*) D, Pediculus corporis (female), × 50 diams. (*After Kuchenmeister.*) E, Pediculus pubis, × 35 diams. (*After Kuchenmeister.*) F, Pediculus capitis (male), × 35 diams. (*After Kuchenmeister.*) G, Filaria medinensis, half natural size, with larvæ (*a*), × 30 diams. (*After Cobbold.*) H, Filaria sanguinis hominis, × 250 diams. (*After Lewis.*) With ovum (*a*). (*After Cobbold.*)

dies. The ova are hatched in a week to a fortnight, the oldest, which are, of course, the most superficial, coming first to the surface, aided by the natural exfoliation of the older epidermis. The burrows that have been described are the characteristic lesion of scabies, and the most common situations for them are the parts where the skin is least thick, viz. the webs between the fingers and toes (especially in infants), the fronts of the wrists, inside the umbilicus, the penis, and other parts of the genitals, the breasts in women; occasionally, though rarely except in very uncleanly people, they may be seen in other parts, but the head and face are never attacked except in children in arms, where, for obvious reasons, these parts are much exposed to contagion. The burrows can generally be found without difficulty in persons who are not too particular in their ablutions, the rough line marking the track being blackened by dirt; in other cases the little vesicle at the entrance will indicate their position. In cleanly people they are often by no means easy to find, the line marking their course being ill defined. There are also certain periods in the disease when burrows are not present, viz. at the very beginning when the acarus has only just penetrated the epidermis and has had no time to burrow, and later when the burrows have been laid open and destroyed by scratching or treatment.

The secondary lesions are the results of inflammatory reaction, intensified by scratching and complicated by inoculation with pus cocci. The eruption is first vesicular; later, pustules and sometimes bullæ become developed. The distinctive feature of the lesions is that they are not grouped as in eczema, which they otherwise often resemble, but are isolated and irregularly scattered about. The marks of scratching are seen in all the parts of the body which can easily be got at by the patient's fingers.

In men they are chiefly seen on the front of the body, from the nipple to the knees; posteriorly they are almost exclusively on the buttocks. In women and children they are also visible on the lower part of the back. The eruption is usually most marked in parts subjected to friction, and over the ischial tuberosities in those whose occupation makes it necessary for them to sit much on hard seats. The eruption of scabies, therefore, presents a very pronounced multiformity of aspect. Burrows, vesicles, bullæ, pustules, are mingled in the most irregular manner with the marks of finger-nails and the results of secondary inoculations in the form of ecthymatous or impetiginous eruptions, in various stages of development, and destruction by scratching (ruptured vesicles and bullæ, pustules laid open and discharging or covered with scab, hæmorrhagic points, etc.) The secondary lesions are sometimes so severe as to disguise the real nature of the affection. This is rare in England, but is frequent in Norway and some other places.

The most marked subjective symptom is itching, which is usually extremely troublesome, especially at night. As in other conditions, however, it varies in degree according to the temperament of the patient, some persons being the subjects of itch for weeks or months without being conscious of any particular irritation of the skin, others being driven almost frantic by it from the first. Irritation is not infrequently felt in places distant from the seat of the disease; thus, having once inoculated myself experimentally on the arm, I felt little or no itching at the site of inoculation, but after a time I became aware of intense itching at the back of the shoulder. This reflex irritation may give rise to a sympathetic eruption in distant parts, as is observed in urticaria, and when the characteristic burrows are not readily

discoverable, this may be very misleading. When the burrows have been destroyed, the itching and the other symptoms usually subside; sometimes, however, the lesions may persist for a long time, and in persons with an exceptionally irritable skin, may be the starting-point of eczema and other troubles.

The disease is communicated by contact, but it is probable that this requires to be intimate and prolonged to take effect. Want of cleanliness is a predisposing cause, but persons of all kinds are liable to attack.

The pathology of scabies is that of artificial dermatitis, with the usual secondary lesions caused by scratching and inoculation with inflammatory products. The acarus, which is the cause of the disease, belongs to the tracheal order of the arachnidæ. The female (Fig. 4, B), which can just be seen with the naked eye, has a white roundish body with eight conical legs; to each of the fore-legs is attached a sucker, to each of the hinder ones a bristle. She burrows into the epidermis with her head, the back part of the body being tilted upwards. The male (Fig. 4, A) is about two-thirds the size of the female.

In a well-marked case of scabies the diagnosis is easy, the characteristic burrows between the fingers and on the wrists being conclusive. As already said, the mouth of the burrow is usually marked by a vesicle, and in searching for the parasite the farther end of the passage away from the vesicle must be sought for. The following is the method of procedure most likely to be successful. A pin is laid on the surface of the epidermis, not point downwards, but on the flat; it should then be pushed into the epidermis, at the end of the burrow away from the vesicle, with a rotatory movement, great care being taken not to draw blood. If the acarus

is alive it will cling to the end of the pin, where it can be seen as a minute pearly object. It can then be mounted in glycerine and examined microscopically. When no burrows are to be seen, the diagnosis must chiefly rest on the distribution, and especially on the irregularity, of the lesions. A pustular eruption on the hands should always excite suspicion; the distribution of the marks of scratching is a further guide to the nature of the affection, and any history of a similar affection in the same house is an important link in the evidence.

The prognosis is always good as regards recovery, if proper treatment is submitted to; but, as already said, scabies may, in certain persons, be the starting-point of some further affection of the skin.

The points to be aimed at in the treatment of scabies are (1) the breaking up of the burrows; (2) the destruction of the parasites; (3) the relief of the subjective symptoms; and (4) the prevention or cure of secondary lesions caused by pus cocci, etc. The quickness of the cure depends on the thoroughness of the treatment. The patient should be stripped, and the affected parts soaked with hot water, and vigorously scrubbed with soft soap; this will remove the superficial layers of the epidermis, and lay open the burrows. The next step is the application of parasiticide agents in the form of a thickish ointment, or, better still, a paste, which should be thoroughly rubbed in and plastered over the affected parts, so as to fill every nook and cranny of the burrows. The usual application is simple sulphur ointment (℥ss to ℥j); the sulphur ointment of the Pharmacopœia is unnecessarily strong, and should always be diluted. The application should be renewed every few hours for two or three days, the patient meanwhile wearing old under-garments. The treatment should be brought to a close with a

cleansing bath. An essential point in the treatment is to disinfect the patient's clothes by boiling or fumigation with sulphur.

At the St. Louis Hospital, in Paris, the favourite remedy is an ointment consisting of potass. carbonat. ʒj, sulph. sublim. ʒij, in an ounce and a half of lard. Soft soap is first rubbed in for half an hour, then the patient remains in a hot bath for half an hour; the ointment is next thoroughly rubbed in, the patient resumes his clothes without washing off the ointment, and is usually cured. Another very effective ointment is composed of sublimed sulphur, oil of cade, of each ʒij, prepared chalk ʒijss, soft soap and lard, āā ℥j. When time is a matter of vital importance, the first and second indications in the treatment of scabies may be fulfilled by one remedy—namely, the application of Vlemingkx's lotion, which consists of quicklime ʒij, sulphur ℥iv, and water ℥xx. The ingredients should be boiled in an iron vessel, and stirred with a wooden spatula to perfect union. The quicklime causes exfoliation of the epidermis, and gives the sulphur free access to the burrows. Medicated soaps—such as the sulphur precipitate soap, 10 per cent., prepared according to Buzzi's directions *—are also useful. For infants and persons with a delicate skin, stavesacre or weak balsam of Peru ointment is very useful. A word of caution may be added as to the way in which the mechanical and parasiticide applications are made. Vigour must not be pushed to the length of violence, nor is it necessary to stir up acute inflammation of the skin in order to kill the parasites. On the other hand, the mere smearing on of a little sulphur ointment is of no use. For the relief of the subjective symptoms soothing applications, such as calamine lotion, alkaline

* "Ergänzungsheft 2;" *Monatsh. f. prakt. Derm.*, 1891.

baths, etc., and antipruritic remedies, such as carbolic or menthol soap, or any of the remedies recommended for pruriginous conditions should be employed. The patient should be warned that itching sensations may continue for some time after the disease is cured. Secondary inflammatory or suppurative lesions should be treated by antiseptic applications, such as boracic acid lotion or liquor carbonis detergens.

In some cases the secondary lesions in scabies are of such a degree of severity that the application of the ordinary parasiticide substances is out of the question. In these cases the practitioner must first endeavour to subdue the inflammatory symptoms, and then cautiously feel his way towards the radical treatment of the disease by the graduated use of parasiticides, the effect of which should be carefully watched.

Pediculosis is the presence of lice on the head, about the body, and among the pubic hairs. The parasites infesting these several localities differ somewhat in size and form. The body louse is the longest, the crab the widest, the head louse being midway between the other two in both dimensions. The head louse (Fig. 4, F) has a triangular head, and varies in colour according to that of the skin which it feeds on, being grey with black margins on the European, yellowish-brown on the Chinaman, white on the Eskimo, and black on the negro. The female is larger, and more numerous than the male; each one lays from fifty to sixty eggs, so that multiplication is very rapid. The body louse (Fig. 4, D), besides being larger than the head louse, has a more oval head and more developed legs, and is more active; it is dirty-white in colour, with black margins. The crab louse (Fig. 4, E) is broader and flatter than either of the others; it is yellowish-brown in colour, and has a rounded head with five prominent antennæ; the female

lays from ten to fifteen eggs, which hatch out in a week, the young being sexually mature in a fortnight. Pediculi deposit their ova on the hairs, one ovum or nit being usually attached to a single hair; occasionally there are several. They are attached to the side of the hair by a glutinous material which binds them so firmly that they can be separated from the hair only by dissolving the cement with acetic acid.

All three species of lice cause similar lesions modified by peculiarities of situation. The primary lesion is a wound inflicted by the parasite in feeding; possibly also a minute quantity of some poisonous secretion is inoculated at the same time. The process of feeding is effected by the insertion into the opening of a sweat duct of a membranous tube through which the blood is sucked up. When the louse has satisfied its appetite it extracts the sucker, and the blood welling up in the duct forms a minute red speck on the surface. This hæmorrhagic speck which can be seen but cannot be felt, is, as was first pointed out by Tilbury Fox, the characteristic lesion of pediculosis, and its presence is conclusive evidence of the nature of the affection. There are no other lesions on the skin beyond such as caused by scratching—erythematous red lines parallel to each other and marking the track of the finger-nails, hæmorrhages, excoriations, wheals, and impetiginous pustules. When the top of a congested papilla has been scratched off, a tiny blood-crust is often left; this is common in all conditions that are accompanied by scratching, and is distinguished from the hæmorrhagic speck characteristic of pediculosis by the fact that it can be felt as well as seen. Persistent scratching may result in the production of a peculiar leathery thickening of the skin with pigmentation—the so-called "vagabond's skin." Among the rarer symptoms of pediculosis may be mentioned pyrexia, which is believed by

Jamieson* to arise reflexly from cutaneous irritation; Payne,† however, looks upon it as the result of a kind of poisoning.

The **pediculus capitis** is common in children whose heads are neglected; though it frequently attacks cleanly children and adults. It chiefly affects the occipital region where the hair is thickest, and it gives rise to itching all over the scalp. In the healthy the scratching only causes excoriation, but in ill-nourished children a suppurative process is pretty sure to supervene from inoculation with pus cocci. Sometimes the occipital and other neighbouring glands become enlarged and inflamed, and abscesses may form. In very dirty persons a peculiar condition of the hair, known as *plica polonica*, is produced by the matting together of it with pus, nits, scales, and scabs, and miscellaneous filth.

It is hardly necessary to say that pediculi never originate by spontaneous generation, as many unscientific persons believe, but are always communicated by one host to another, either by direct contact or by the medium of brushes, towels, etc.

When itching of the scalp is complained of, and especially if impetigo contagiosa be present, and there are enlarged glands in the neck, the occipital region should be carefully explored for nits. Impetigo contagiosa alone, however, is not enough to found a diagnosis of lice upon, as there are many other conditions with which that affection is associated.

The treatment is to destroy the parasites and induce

* *Brit. Journ. of Dermatology*, vol. i., 1888-89, p. 321, *et seq.* A case is cited in which a healthy lad, aged 19, was on two distinct occasions admitted into the Edinburgh Royal Infirmary with a very high temperature (106·2° on one occasion, 106·4° on the other), which immediately fell to normal when he was freed by a bath and a change of linen from the innumerable pediculi with which he was infested.

† Ibid., 1890, p. 209.

healing of the secondary lesions by means of antiseptic remedies. If the patient is a child the hair should be cut short and white precipitate ointment applied. In women the hair need not be sacrificed; the lice can be killed by thoroughly smearing the scalp with the same preparation. The most difficult part of the treatment is to get rid of nits. For this purpose the hair should be thoroughly wetted with acetic acid, which dissolves the glutinous material fixing the ovum to the hair, and then carefully combed out. The process should be repeated as often as may be necessary. A mixture of æther ℥j and oleate of mercury (5 per cent.) ℥j is an effective application for the destruction of pediculi and their ova, or the hair may be soaked with petroleum. The crusts should then be detached by softening with carbolised oil and the impetigo contagiosa treated with weak mercurial or strong boracic acid lotions.

Pediculus corporis inhabits the clothes rather than the skin. The patient, who is generally an elderly person in low condition and regardless of cleanliness, complains of irritation, especially about the shoulders, on the back, and on the extensor surfaces of the limbs, but not on the hands or feet. When the clothing is removed there is generally little or nothing to be seen beyond the results of scratching —viz. long lines torn by the finger-nails, with here and there wheals, but, as a rule, no vesicles or other definite lesions. On examination with a lens the characteristic hæmorrhagic specks can be made out. No pediculi will be found on the skin, but on searching the clothes, particularly the folds of the underlinen, they will usually be discovered, unless, as often happens, the patient has taken the precaution to change his clothes before presenting himself for inspection. A favourite hunting-ground of the body-louse is the shirt-collar on its internal aspect.

So partial is the parasite to this part that signs of severe scratching about the back of the neck and the shoulders in an elderly person of doubtful cleanliness are almost conclusive evidence of the presence of lice. It is in tramps and other persons infested with body-lice that the "vagabond's skin" already mentioned is most frequently seen.

The diagnosis rests, in the absence of visible parasites, on the presence of the characteristic hæmorrhagic specks on the neck and shoulders. From scabies the affection is distinguished by there being no lesions on the hands or wrists.

The treatment is to kill the parasites by thorough disinfection of the clothes which are their habitat. For this purpose the most effectual measure is baking in a disinfecting oven at a temperature of 212° or more. The patient himself may with advantage take alkaline or ordinary hot baths, and the free use of some medicated antiseptic soap will be a most useful adjunct.

Pediculus pubis chiefly lives among the pubic hairs, but occasionally extends its depredations to the abdomen, thorax, axillæ, and occasionally even to the eyelashes, whiskers, and beard. The only subjective symptom is itching. Papules (the tops of which are generally scratched off) are the usual lesions, but sometimes more or less severe eczematous inflammation is induced. A characteristic lesion produced by crab lice, according to Mourson and Dugnet, is a peculiar steel-grey pigmentation which appears in spots about the size of the finger-nail (*maculæ cæruleæ*). The colour of these blue spots corresponds with that of a pigment contained in the thorax of the parasite, and is thought to be inserted by it through its sucker into the epidermic tissues. The stains fade when the pediculi have been destroyed.

The parasite is usually communicated by sexual

intercourse; sometimes also by clothes, etc. The most cleanly people are liable to be affected if they put themselves in the way of becoming the hosts of the lice.

Itching in the pubic region should always excite suspicion of the presence of crab lice. The diagnosis is made by actual inspection and discovery of the offending agent.

The treatment should be on the same lines as that recommended for pediculi capitis, but the pubic hair should not be cut. White precipitate ointment is an excellent remedy. Oleate of mercury (5 per cent.) ʒvj, æther. sulp. ʒij, kills the pediculi and destroys the nits. After the parasiticide remedy has done its work some calamine or other soothing lotion should be applied.

Miscellaneous parasites.—Among the other parasites which ordinarily infest the human skin are the common flea, the common bed bug, and the harvest bug. In tropical climates the chigoe or jigger is a source of considerable annoyance, and the guinea-worm is often a cause of much suffering and serious or even fatal disease.

The *flea* makes a characteristic lesion, consisting of a small red spot with a central point of darker hue. Older spots become petechial, and sometimes in patients suffering from fever may be mistaken for the exanthem of typhoid, measles, or for purpura. The marks on the linen and the presence of recent spots will enable the observer to come to a correct conclusion.

The *bug* produces a wheal with a whitish centre and a central punctum resembling that made by the flea. Great irritation and hyperæmia are usually caused by bugs, which excite artificial congestion by injecting an irritant substance so as to increase the supply of blood available for sucking. The irritation

may be removed by the application of linen soaked in eau de Cologne, toilet vinegar, or lead lotion.

The bites and stings of *gnats*, *mosquitoes*, and other similar pests, raise wheals usually accompanied by excessive itching. The remedies recommended for bug bites will be equally useful for these.

The *harvest bug* is active in July and August among those who work in the fields. It produces bright red papules and wheals generally on the ankles and legs, but often on other parts of the body. The itching is very troublesome, and scratching may cause secondary lesions of the usual kind. The treatment consists in the application of parasiticides such as naphthol or weak mercurial ointment.

The *chigoe* (*pulex penetrans*) is found in tropical countries. The animal bores into the skin and there gives rise to suppuration and ulceration.

The *guinea-worm* or dracunculus medinensis (Fig. 4, G) is a parasite which in tropical countries is supposed to gain admission to the body through the medium of water by drinking. I have seen only one case in a lady who had recently returned from India, the only symptom being one large bulla on the instep. I was able to prove the diagnosis and effect a cure by opening the bulla and winding out the worm on a match, a process which took twelve days. For a full account of the worm and the symptoms produced by it the reader is referred to Cobbold's book on "Parasites."

Craw-craw is a disease that occurs on the West Coast of Africa; it appears to be caused by a filarial organism.

Echinococcus hydatid, embryos of the *distoma hepaticum* and ova of *bilharzia hæmatobia* have also been found in rare instances in the human skin, and *cysticercus cellulosæ cutis* is sometimes present in the subcutaneous tissue.

CHAPTER XV.

LOCAL INOCULABLE DISEASES (*continued*).

II. Vegetable Parasites.

This group includes all the affections of the skin in which the process is set up by the growth of a fungus in the epidermis. The fungi are the trichophyton (causing ringworm); the achorion Schönleinii (causing favus); the microsporon furfur (causing tinea versicolor); the microsporon minutissimum (causing erythrasma); the actinomyces, or ray fungus (causing actinomycosis); the tinea imbricata (causing Tokelau ringworm); the chionyphe Carteri, one of the actinomyces (causing mycetoma); and an unnamed fungus, which is believed to cause *pinta*, a disease endemic in some parts of South America.

Ringworm may affect hairy or hairless parts of the skin and the nails. On the skin the process is everywhere essentially the same, consisting of the immediate inflammatory reaction excited by the presence of the fungus (trichophyton), to which the results of secondary inoculation with pus cocci, etc., are generally superadded. The appearance and evolution of the lesions are, however, so modified by the structural peculiarities of the parts on which they are situated that clinically two distinct varieties have to be recognised. These are (*a*) ringworm of the body or hairless parts of the skin, known as *tinea circinata;* and (*b*) ringworm of the hairy parts, further subdivided into ringworm of the scalp, or *tinea tonsurans;* and ringworm of the beard, or *tinea barbæ*, or *tinea sycosis*.

The ringworm fungus was discovered in the human hair by Malmsten and Gruby, and between

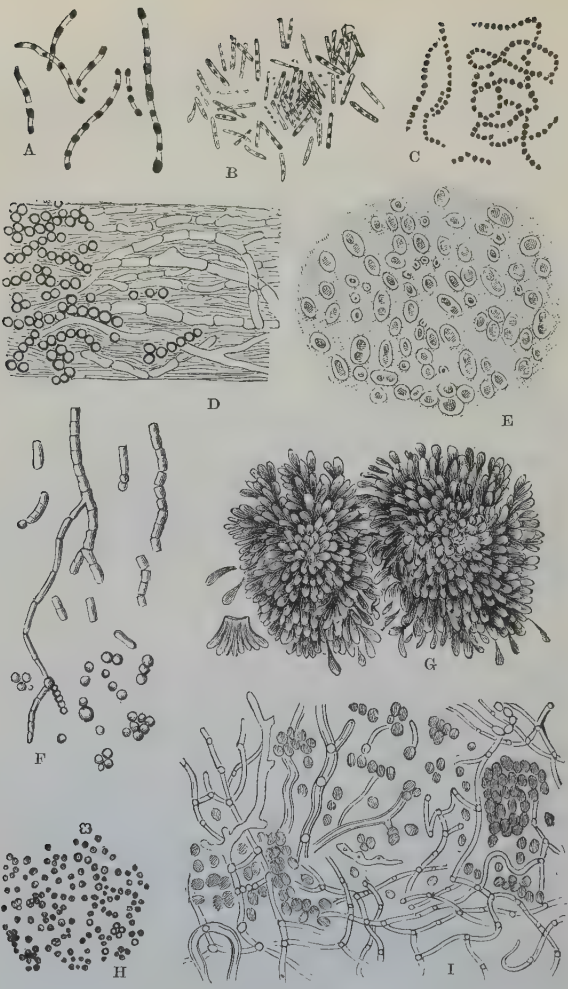

Fig. 5.—Vegetable Parasites.

A, Tubercle bacilli; magnified 2,500 diams. (*After Crookshank.*) B, Leprosy bacilli; magnified 1,000 diams. C, Streptococcus pyogenes. (*After Crookshank.*) D, Part of a hair containing hyphæ and spores of trichophyton tonsurans; × 500 diams. E, Encapsuled bacilli of rhinoscleroma. (*Modified from Kaposi.*) F, Achorion Schönleinii (the favus fungus). (*After Neumann.*) G, Actinomyces. (*After Crookshank.*) H, Staphylococcus. I, Microsporon furfur, the fungus of tinea versicolor.

the epidermal cells by Hebra in 1845; but authorities are not yet agreed as to the class of fungi to which it belongs. Grawitz* maintained that trichophyton, achorion (favus), micros poron furfur (tinea versicolor) and oïdium albicans (thrush) are identical, or, at any rate, members of one species differing only in size and mere modifications of the common oïdium lactis. Thin,† after cultivating trichophyton on gelatine, came to the conclusion that it is a special fungus. Duclaux‡ succeeded in growing the fungus in fluid media, of vegetable origin, with the result that aërial fructification took place. Duclaux's experiments were repeated, and his results confirmed by Leslie Roberts,§ who, by inoculating cultivations of the fungus into the skin of a guineapig, and into his own arm, produced true tinea circinata. According to this observer, trichophyton is a fungus which can vary its form and activity according to the physical and chemical properties of the soil in which it grows. The reason why the fungus never develops special fructification organs in the epithelium is that the human skin is an unfavourable soil in which it merely vegetates without developing. Leslie Roberts is inclined provisionally to connect trichophyton with the ascomycetes. According to Sabouraud, whose conclusions are based on an extensive series of microscopical examinations of cases of tinea in man and animals, of cultures on artificial media, and of inoculations on man and animals, there are two distinct types of the fungus trichophyton causing ringworm in man—one with small spores (2 to 3mm.) which he calls "T. microsporon," and one with large

* Virchow's *Archiv*, Bd. lxx., 1877; and Bd. lxxxi., 1881.

† "Ringworm." See also Crocker, "Diseases of the Skin," 2nd edition, p. 814, *et seq.* London, 1893.

‡ Soc. de Biologie, January 16, 1886.

§ *Brit. Journ. of Dermatol.*, September, 1889. Ibid., p. 363.

spores (7 to 8mm.) which he calls "T. megalosporon." They differ in their mode of growth on artificial media, and in their pathological effects on the human skin and its appendages. 2. T. microsporon is the common fungus of tinea tonsurans of children, especially of those cases which are rebellious to treatment, and its special seat of growth is in the substance of the hair. 3. T. megalosporon is essentially the fungus of ringworm of the beard and of the smooth parts of the skin, and when the hairs are implicated the prognosis as regards treatment is good. One-third of the cases of T. tonsurans of children are due to trichophyton megalosporon. 4. The spores of T. microsporon are contained in a mycelium, but this is not visible, the spores appearing irregularly piled up like zooglœa masses; and growing outside they form a dense sheath around the hair. 5. The spores of T. megalosporon are always contained in distinct mycelium filaments, which may either be resistant or remaining when the hair is broken up, or fragile and easily separating up into spores. 6. The two types of fungi are never found together on the same head, and when the tinea spreads in a family the spores keep their characters in all the individuals affected. 7. The artificial cultures of the two types (developing best in jellies but little azotised) show distinct and constant characters. The cultures of T. microsporon show a downy surface and white colour; those of T. megalosporon a powdery surface, with arborescent peripheral rays, and often a yellowish colour. 8. Although the morphological appearances, mode of growth, and clinical effects of each type of trichophyton show certain characters in general, yet there are certain constant minor differences which point to the fact that there are several different kinds or species of fungus included under each type.

9. The species included under T. microsporon are few in number, and, with the exception of one which causes the common contagious "herpes" of the horse, almost entirely human. 10. The species of T. megalosporon are numerous and fall under several natural groups, the members of which resemble one another both from clinical and mycological aspects. 11. Many animals are subject to the growth upon their skins of particular species of T. megalosporon, and these when contracted by man give rise to special forms of trichophytia. 12. Each form of human tinea is caused by a distinct species of trichophyton.*

Tinea circinata.—On hairless parts, ringworm after an indefinite period of incubation—the length of which depends on the thickness of the epidermis—begins as a small red spot, slightly raised, and having a well-defined border. This spot gradually spreads at the edge, its surface meanwhile becoming more or less scaly. As it extends peripherally the redness disappears in the centre, leaving a slightly discoloured branny area, which forms the inside of a red ring. The circle gradually enlarges like the fairy rings of the mushroom, without any widening of its edge, and it may expand so as to enclose a considerable area. There may be only one such ring, but more frequently there are several, and in that case those adjoining each other may run together, and form festooned patterns. There is generally no tendency to symmetrical arrangement or grouping of the rings; occasionally, however, two or more rings are placed concentrically. The lesions are often situated on the face, neck, hands, or other exposed surface. Not

* The above summary of Sabouraud's conclusions was given by Dr. Abraham at the annual meeting of the British Medical Association in 1893. (*Brit. Journ. of Dermatology*, September, 1893, p. 274.)

infrequently involution does not take place in the centre, as the edge advances, and the lesions take the form of patches instead of rings. These patches have a clearly defined border, but they are not always circular or oval in outline. The process is usually accompanied by inflammation, the intensity of which varies according to the idiosyncrasy of the skin. The ring or patch often becomes the seat of papular or vesicular eruption, and pustules may develop as the result of the inoculation of pus cocci, and other micro-organisms. Occasionally the neighbouring lymphatic glands are slightly enlarged.

In the pubic, perinæal, and axillary regions the growth of the fungus is stimulated by the warmth and moisture, and both the primary and the secondary lesions are of a more intensely inflammatory character than in other situations. The affection, which is often termed eczema marginatum, may spread over the lower part of the belly, the buttocks, and in the fold of the nates. It is seen in its highest stage of development in hot climates. Moukhtar,* of Constantinople, has described a variety of ringworm which occurs on the palms and soles, where, in the early stage, it simulates sweat eczema, and in the later stages a palmar syphilide.

Tinea tonsurans, or ringworm of the scalp, is essentially a disease of childhood, being only exceptionally seen in the adult. The initial lesion is a small red spot which develops about the orifice of a hair follicle. The spot spreads peripherally, becomes scaly on the surface, and in a short time grows into a circular slightly-raised patch, which may be of considerable size. Neighbouring patches frequently run together, with the result that an area of thickened, desquamating integument, irregular in outline and

* *Annales de Dermatol. et de Syph.*, tome iii., 1892.

dirty-grey in colour, is formed. A narrow zone of erythematous redness usually surrounds the lesion. The diseased area on close inspection is nearly always seen to be thinly covered with short stumpy hairs, like stubble in a field (Plate I. Fig. 1). These broken hairs have lost their natural gloss, and have often a whitish, frosted appearance. They are twisted and friable, and can easily be pulled out or broken off without causing pain. Between the hairs the surface of the patch is dry and powdery. After soaking in liquor potassæ, if placed under the microscope with a power of from two to three hundred diameters, spores with scanty mycelium can be seen within the shaft of the hair and between the shaft and the inner root-sheath (Fig. 5, D). The surface of the patches is not infrequently the seat of papules and vesicles, and sometimes of pustules with scabs, giving rise to a condition of contagious impetigo. On removing the scabs a red, oozing, uneven surface is exposed. The raised edge of the patch merges insensibly into the surrounding healthy skin. The papules, vesicles, and pustules may obscure the real nature of the disease until the scabs have been removed and the characteristic broken hairs found.

In some cases the affected hair falls out spontaneously, smooth bald spaces being left, without the previous formation of a ring or patch. This condition is evidently that described as *tinea decalvans* by Tilbury Fox; it is not, however, a distinct disease, but a variety of tinea tonsurans, called by Liveing *bald ringworm*. This is the form of ringworm in which spontaneous cure often takes place with great rapidity, thus giving an undeserved reputation to various quack remedies. The reason of the rapid recovery in such cases is by no means clear; it may possibly be owing to some structural peculiarity in the hair or skin. When the inflammatory symptoms have somewhat subsided, and the fungus has worked its way towards

the bottom of the follicle, there is little or no further reaction, and a dry, scurfy condition of the affected parts results. The disease then enters on an excessively tedious phase. In consequence of the thickening around the neck of the follicle, which is the result of the previous inflammatory process, the sac is converted into what may be called a bottle with a narrow neck; thus the fungus is imprisoned in the follicle and remedial agents are prevented from gaining access to it.

The older writers laid considerable stress on the constitutional state of the patient, believing that the trichophyton found a more favourable situation for its growth in strumous or delicate children. The affection, however, is purely local, and I attach more importance to peculiarities of structure in the epidermis and the hair than to the condition of the patient's health. Some of the most persistent cases that have come under my notice have been in perfectly healthy children.

Kerion.—Under this name a special variety of ringworm is designated in which the inflammatory lesions are much more severe than in cases of the ordinary kind. The condition may be described as a deep-seated pustular variety of ringworm. At the bottom of each follicle little abscesses form, and the surface of the patch is red in colour, and soft and boggy to the touch, almost giving the sensation of fluctuation. Beads of pus may be seen oozing from the dilated follicles. The process, though painful, tends to a natural cure by destruction of the fungus. The pus in the follicles loosens the diseased hairs and pushes them out of the sac, while the growth of the fungus is, so to speak, choked by the multiplication of the pus cocci. The removal of the hairs leaves an opening for the escape of the products of suppuration: the discharge, which is muco-purulent in character, soon ceases. Sloughing never occurs, but

the inflammatory process may be sufficiently intense to destroy the hair-roots, and permanent baldness may be the consequence.

Ringworm is communicated by contagion, which may be direct, the fungus being transmitted by one patient to another, or indirect through brushes or other articles that have been used by one suffering from the disease. Majocchi * has shown that cultures of the fungus which have been kept for two years still retain their virulence. By inoculating such a culture in the fore-arm of a man he produced typical ringworm. Tinea tonsurans, and more frequently tinea circinata, may be transmitted to the human subject by animals —such as dogs and horses. Both sexes are equally liable to attack. Ringworm of the scalp is seldom contracted after puberty; on the body the disease may occur at any age. My experience leads me to believe that tinea tonsurans is more common and obstinate in fair-haired than in dark-haired children. Crocker, however, attributes this to the fact that fair children predominate in Great Britain; as the result of an investigation on this point, in five hundred children taken consecutively in the East London Hospital for Children, and compared, in respect of the colour of their hair and eyes, with four hundred cases of ringworm, he found that the proportion of fair to dark in the two series was almost identical, being 82·4 per cent. fair and 17·6 per cent. dark in the former, and 82·6 per cent. fair and 17·4 per cent. dark in the latter. Crocker, however, admits that in dark-haired children the hair resists the invasion of the fungus more than in others.†

The pathology of ringworm represents the results of the growth of the trichophyton in the epidermis—namely, destruction of the hair, and an inflammatory

* *Gazz. Med. Lombarda*, September 2, 1893.

† "Diseases of the Skin," second edition, p. 813. London, 1893.

process set up by the irritation of the fungus, complicated in many cases by lesions consequent on the inoculation of purulent material.

The diagnosis of tinea circinata seldom presents much difficulty, the lesions having a characteristic appearance. The presence of the fungus is conclusive, but it must be admitted that its discovery is not always easy even to an expert. It is far otherwise as regards ringworm of the scalp, where, in many cases, the secondary lesions mask the real disease so completely that doubt can be set at rest only by microscopic examination (Fig. 5, D). In an ordinary case careful examination of the diseased patches will seldom fail to reveal broken twisted hairs, which are the sure mark of the destructive activity of the fungus. In very chronic cases, when the scalp is dry and scaly, the disease may be mistaken for seborrhœa, eczema, or psoriasis. In seborrhœa, however, the scaliness is not in patches. Although eczema may be simulated by an irritated condition of the scalp, resulting either from scratching or from irritant applications, circumscribed patches are rarely seen, and loss of hair is not common. Psoriasis of the scalp is in most cases associated with characteristic lesions, in parts like the elbows and knees, generally affected by that disease; moreover, the patches, though circumscribed and scaly, are often covered with crusts, and destruction of hair is exceptional. In all these cases the characteristic stubble of broken twisted hairs is absent. Favus can be distinguished from ringworm by its peculiar sulphur-coloured discs and mousy odour, and by the fact that the hair comes out unbroken. The variety of ringworm known as tinea decalvans is sometimes difficult to distinguish from alopecia areata. Broken hairs should be looked for at the edge of the patch; the presence of the fungus in them at once settles the question.

The prognosis is always good as regards recovery, but should be very guarded in respect of the time the affection is likely to last. In chronic cases the average duration of treatment may be estimated at a year, or longer.

Treatment consists in the destruction of the fungus, and the removal of the diseased hairs. These objects are effected by (1) mechanical measures directed to the removal of the superficial parts of the epidermis, so that free access may be gained to the fungus; (2) by the application of parasiticide agents, which may act (*a*) directly on the fungus and (*b*) on the tissues, making the soil unfavourable to its growth; (3) by the production of artificial dermatitis, with the view of destroying the fungus by causing the exfoliation of the layers of the epidermis in which it has taken root.

Ringworm of the body is easily cured, as the affected parts are always accessible. The most effectual mode of treatment is the mechanical removal of the superficial layers of the epidermis by the application of iodine, liquor epispasticus, or other blistering fluid. In this way the whole of the fungus may be destroyed at once. If some be left in the deeper layers of the rete, below the limit of the action of the blister, the application of a parasiticide remedy will speedily destroy it. The most effective agent for the purpose is chrysarobin, which may be applied as an ointment composed of xx grs. of the drug to ʒj of lanolin, or in the form of Unna's ung. chrysarobin. co., which consists of 5 parts of chrysarobin, 2 parts of salicylic acid, 5 parts of ichthyol, and 100 parts of unguentum simplex. Other useful applications are ointments composed of oleate of copper or oleate of mercury 3 grs., lanolin cum oleo ʒj; or sublimed sulphur 3 grs., acid. carbol. ♏xx, lanolin ʒij, ol. oliv. ʒij; either of these should

be rubbed in thrice daily. For young children a milder application, such as hydr. ammon. 3 grs., lanolin or lard ʒj, is advisable.

In ringworm of the scalp the great difficulty of treatment is to reach the fungus. The first thing to be done is to get a clear field of action by epilation. As many of the diseased hairs as possible should be picked out individually with forceps. Not only should all hair that is visibly affected be removed, but a ring of sound hair around the seat of disease, in order to prevent its spreading. If done carefully, epilation causes but little pain. In a recent case the application of strong iodine or blistering fluid may, as in the case of ringworm of the body, be the means of removing a large quantity of the fungus. This, however, should not be done too frequently lest thickening should result from the repeated inflammation.

The next step should be to open up a free way into the interior of the follicles by clearing away obstructing fat and epithelial *débris* from their orifices. For this purpose the parts should be washed with spirit and æther lotion, which will dissolve fatty substances and dehydrate the tissues. It may here be pointed out that as water is one of the substances required by the fungus for its nutrition, parts that are the seat of ringworm should never be washed with that fluid; the disease is always spread by this process. The application of mild antiseptic washes is, however, permissible. A good lotion for the purpose is salicylic acid dissolved in chloroform or æther (grs. v to xx, ad ʒj); it dissolves the fat, dehydrates, loosens the hairs, and directly attacks the fungus. By the use of salicylic acid in this form, if applied sufficiently early, before the fungus has had time to reach the deeper part of the follicle, a rapid cure may be effected. It is an essential condition of success, however, that no fatty substances should be used.

These remedies, however, penetrate only a short distance into the epidermis. In a chronic case more powerful remedies are required, in order to set up a curative dermatitis. In such circumstances chrysarobin is the most effective agent. Unna has pointed out that the scalp does not react strongly to the drug. Duhring * also speaks very highly of chrysarobin. He used it in twenty-nine cases, in only seven of which was any irritation of the scalp complained of. He applied it in the form of an ointment containing from fifteen grains to two drachms of chrysarobin to the ounce, the strength in common use being one drachm to the ounce. A small quantity of the ointment was well rubbed in with a bit of cloth or a mop. An explanation of the enormous number of remedies found useful in chronic ringworm is to be found in the fact that whatever excites inflammation is so far beneficial. This is the mode of action of Coster's paste, strong sulphur and mercurial ointments, oleate of copper, carbolic acid, etc., all of which are useful.

Lastly, in some cases a more destructive inflammation, producing a condition resembling kerion, is required, the object being to excite an inflammatory process and perhaps local necrosis, whereby the fungus, as well as the affected tissues, shall be involved in the destruction. The best agent for the production of artificial kerion is croton oil (Alder Smith). This may, if necessary, be followed up by the use of strong parasiticides and reducing agents. Besnier goes so far as to say that ringworm can be cured only by inflammation, as there is in his opinion no remedy that can destroy the fungus. Vidal's† treatment is based on the fact that the fungus, being

* *Amer. Journ. of Med. Sci.*, February, 1893.

† Congrès Intern. de Derm. et de Syph., tenu à Paris en 1889 : *Comptes Rendus*, Paris, 1890, p. 216.

aërobic, can be destroyed by deprivation of air. The hair having been cut close, the head is rubbed with essence of turpentine and the affected parts painted with tincture of iodine. The head is then smeared with vaseline, either pure, or containing boracic acid or iodine (1 per cent.), and covered with a caoutchouc cap or a guttapercha leaf kept closely applied to the scalp with a bandage. The dressing is renewed morning and night, and the parts washed with soap and water and carefully dried. Vidal is satisfied with the results of this treatment.

In schools special precautions will be required to prevent the spread of ringworm. When a case is discovered, the patient should at once be isolated and a careful examination of each child should be made day by day. It would be well, as I pointed out in a paper read before the Congress of Hygiene and Demography, if special schools were established for children suffering from ringworm.

Tinea sycosis, or tinea barbæ, is follicular inflammation of the chin and other hairy parts of the face, in which the ringworm fungus is the irritant. The initial lesion is a red scaly spot, which soon enlarges, sometimes undergoing involution in the centre, and forming a ring; in other cases retaining the character of a patch, with a defined margin and scaly surface. As other similar lesions develop, they often become confluent. Pustules, each of which is traversed by a hair, form both on the surface of the patches and on the intervening skin. The eruption is accompanied by considerable itching. A more severe form of the affection, corresponding to kerion of the scalp, is sometimes met with; the inflammatory process is more intense, and spreads rapidly; there is brawny infiltration of the skin of the chin and sides of the face, the surface of which is thrown up here and there into irregular lumps, and is thickly

studded with hair-pierced pustules. The hair is loosened, but, as a rule, not damaged, except in very obstinate cases. The suppurative process may, however, be sufficiently severe to destroy the follicles, leaving permanent scars, on which no hair can grow. The affection may persist indefinitely.

Tinea sycosis is caused by the trichophyton, and is communicated by contact with infected persons—especially children—or animals. The shaving brushes and other instruments used by barbers are very often the medium of conveying the disease. This form of ringworm is naturally almost confined to the male sex, and it is most common in young adults.

Pathologically, the affection is a folliculitis and perifolliculitis, generally running on to suppuration. The process begins in the interior of the follicle, and spreads outwards, loosening the hair-shaft from the wall of the follicle.

The diagnosis has to be made from sycosis and from eczematous folliculitis. In the former case an appeal must often be made to the microscope; clinically, the trichophytic disease spreads more rapidly, and causes more lumpiness of the affected surface. The eczematous condition is distinguished by the fact that serous discharge is, or has been, a feature in the process; moreover, there is little or no loosening of the hairs, and the affection is not confined to the hairy parts.

The prognosis is good as regards ultimate cure, if the patient will persevere with suitable treatment.

The treatment should be conducted on the same general principles as that of ringworm of the scalp. Epilation must be carried out piecemeal. This will give exit to the pus; incision is never required. Parasiticides must then be applied, their nature and strength being carefully adapted to the condition of the affected parts and the susceptibility of the patient's

skin. Chrysarobin, in the form of an ointment (grs. x to ʒss of the drug to ʒj of lanolin or lard), is the most efficient application. Sulphur, or oleate of copper, is useful in the milder forms of the affection. The case must be kept under observation for a long time after apparent cure. For the prevention of the disease it might be well to follow the example of certain legislative authorities in Germany and elsewhere, making it compulsory on all barbers and hairdressers to disinfect their instruments thoroughly every time they are used.

Ringworm of the nails.—The nails may be attacked by the trichophyton either in association with ringworm on some other part of the body or independently, especially in nurses who have to look after children suffering from the disease. Inflammation of the matrix is set up, and the nail becomes thickened, lustreless, uneven, and brittle. The treatment is to scrape the nail thoroughly, and apply chrysarobin or some other parasiticide. The treatment used by Harrison, of Bristol, for ringworm of the scalp is particularly useful for the disease as it affects the nails. He uses two solutions, No. 1 composed of liquor potassæ and distilled water, āā ʒss, and iodide of potassium ʒss; and No. 2, consisting of hydr. perchlor. grs. 4, spir. vini rect. and distilled water, āā ʒss. The nail having been scraped, No. 1 is applied on lint under oiled silk for fifteen minutes; then No. 2 is immediately applied in the same way, and kept on for twenty-four hours. The nail is then again scraped, and the applications are repeated as often as may be necessary. H. Fournier* recommends the removal of the whole of the affected parts by scraping, scratching, or evulsion, and by the action of various local remedies such as creasote, acetic acid, benzine, corrosive sublimate (2 per cent.

* *Journ. des Mal. Cut. et Syph.*, April, 1889.

in alcohol or chloroform), mercurial plaster, resorcin or tincture of iodine. The two last-named, combined with previous maceration of the nail by means of indiarubber coverings, are those which Fournier has found most successful.

Tinea imbricata (Tokelau ringworm) is an affection confined to the tropics. I have no personal knowledge of this disease, but the following account is mainly condensed from an article by Patrick Manson.* The disease is caused by a vegetable parasite resembling in some respects the ordinary trichophyton, but differing from it slightly in some points and especially in the great abundance in which it is present. The fungus may attack any part of the body, but generally spares the scalp, and as a rule avoids hairy parts. The characteristic lesion is a patch consisting of concentric rings of scales about an eighth of an inch apart. They spread at the edge, not only centrifugally but towards the centre, so as to cover the spaces between the rings and the central area, thus converting the whole into a circular patch resembling watered silk. The scales are like pieces of tissue paper; they have a free border and are firmly adherent at the opposite edge, resembling surgical flaps. The scales are arranged so that the free border of each is towards the centre of the circle or system of circles to which it belongs. The only symptom is itching, which is usually intense. When the scales separate, parallel lines of a colour rather darker than the fawn colour of pityriasis versicolor are left; these lines have a more or less concentric arrangement. Nearly the whole body is sometimes

* *Brit. Journ. of Dermatol.*, 1892, page 5. An excellent description of the disease is also given by Guppy in his work, "The Solomon Islands and its Inhabitants," 1887. See also Lutz (*Monatsh. f. prakt. Derm.*, 1892, No. 4). The parasite has been carefully studied by Bonnafy, "Le Tokelau et son Parasite," Paris, 1893.

affected, but the disease has no effect on the general health. Tinea imbricata is contagious; after inoculation there is an incubation period, lasting on an average nine days. Neither sex is exempt and children are particularly liable. The imbricated scales and concentric rings are so characteristic that there is hardly any possibility of the affection being confused with any other. The only affection at all resembling it is tinea circinata, from which it is at once distinguishable by the centripetal spread of the process. The treatment is to apply parasiticides such as the linimentum iodi or sulphur ointment. The clothes, etc., should be disinfected or destroyed.

Favus is a disease caused by a fungus, the achorion Schoenleinii (Fig, 5, F). The affection is so rare in England that, in reply to an inquiry on this subject addressed by me to the eleven metropolitan hospital schools a year or two ago, it proved that only 13 cases had been under treatment at these institutions during the previous year. It is, however, more common in Scotland. Until lately favus has been comparatively common in some parts of France, where it is a not infrequent cause of rejection of conscripts for military service. The disease shows a marked preference for the scalp, but no part of the skin is exempt, and even mucous membranes are liable to be attacked. On the scalp it first appears as a tiny sulphur yellow disc or *scutulum*, depressed in the centre like a cup and pierced by a hair. This is the characteristic lesion of favus. The little disc increases in size and becomes crusted over, the scutula being sometimes swallowed up in a large rugged scab. About the edge of the scab, however, the little discs can still be seen. The lesion generally takes several months to reach its full development, when the scab and scutulum come away, leaving a glistening atrophic pit destitute of hair. The

hair in the favus crusts is dry and dusty-looking, and is easily pulled out unbroken; sometimes it is split longitudinally. No new hair is formed. In severe cases several lesions run together, forming raised crusted patches of irregular outline, which may be of considerable extent. Between the crusts there are often irregular pale bluish-pink scars. The lesions are usually present in various stages of development at the same time, scutula, large crusted excrescences, and scars being intermingled. The disease is not infrequently complicated by pediculosis, and secondary lesions may arise in the usual way by inoculation of pus cocci. Itching is generally present, but the most characteristic symptom apart from the lesions is a musty, mouse-like odour which is given off by the patient. The disease is essentially chronic, and may last fifteen or twenty years or longer. Sometimes it comes to a standstill spontaneously, leaving a few bald spots.

On hairless parts the lesions present the same general appearance. In a case which recently came under my observation * the whole scalp was covered with large patches of favus crusts. A great portion of the back was occupied with similar masses; there were also crusts on the cheeks. The nails of both hands and both feet, particularly those of the first finger of each hand and the great toes, were thickened, uneven, and lustreless; in some of them no trace of true horny substance remained, its place being occupied all over the matrix and nail bed by an irregular, lumpy, dirty yellowish crust. The disease began when the patient was 23 years of age and lasted 14 years. She died of acute phthisis, which lasted nearly three months, during which the favus spread over the body with great rapidity. Kaposi has reported a case in which a

* *Brit. Journ. of Dermatol.*, April, 1891, p. 101.

patient suffering from universal favus died with symptoms of severe gastro-intestinal irritation, which was found after death to be due to the presence of the favus fungus in the stomach and intestine.

The disease is caused by contagion, the fungus being often derived from animals, especially from cats. Mice, rabbits, fowls, and dogs are also subject to it. It grows much more slowly than the ringworm fungus, and is therefore not so easily transmitted. Want of personal cleanliness is a predisposing factor, as in persons who are sparing and infrequent in their ablutions the fungus is more likely to remain and take root. The fungus seems to find a more favourable soil for its development on the skins of persons in weak health, especially those suffering from phthisis, than in others.

Pathologically, the disease represents the reaction of the tissues to the irritation caused by the growth of the fungus. The spores generally find their way into the hair follicles, where they grow round the hair seat. The favus fungus grows on the epidermis, the density of the growth causing pressure on the parts below, thus crushing out the vitality of the hair and giving rise to atrophic scarring. The characteristic cup-shape is attributed by Unna to growth at the sides proceeding more vigorously than at the centre.

There is some difference of opinion as to whether there is only one or several varieties of favus fungus. It was suggested by Quincke that there are three different species of favus fungus. Unna and Frank* have also found three varieties, two of which were successfully inoculated on the healthy subject, and produced scutula presenting certain differences of appearance to the naked eye. One of these, called by the authors *favus griseus*, showed greyish yellow

* *Brit. Journ. of Dermatol.*, May, 1892, p. 139.

scutula; the other (*favus sulphureus celerior*) showed sulphur yellow scutula, which grew more quickly than the former. Danielssen,* however, as the result of a series of experiments, contends that the achorion Schoenleinii is the only fungus of favus. Sabrazès† examined seventeen cases of favus, and in each case found only the achorion Schoenleinii, which he cultivated and inoculated in mice and in the human subject, producing typical favus cups. He found that the female skin is much more easily inoculable than the male. The diagnosis of favus presents no difficulty in well-marked cases, the cup-shaped sulphur-coloured scabs and mousy odour being characteristic. When, however, the initial lesions have coalesced into dense crusts, the affection may resemble psoriasis of the scalp; the scales, however, are less pearly, and scutula or sulphur-yellow scabs can often be seen about the edges; the lustreless hair and atrophic scarring are also distinctive features. Favus can be distinguished from eczema and seborrhœa by the fact that it is not diffuse as the lesions in these conditions are, but is always bordered by a well-defined margin. It is sometimes very difficult to distinguish it from ringworm, and in some cases the diagnosis can only be made with the help of the microscope (Fig. 5, F). All the lesions should be minutely examined with a lens for remains of the yellow discs of favus or the broken hairs of ringworm. It is sometimes a good plan to leave the disease to itself for a little time, so as to watch the development of fresh foci, when characteristic elements will be recognisable.

The prognosis as to cure is good, but the disease is sometimes extremely refractory to treatment. As in the case of ringworm, it is much more easily dealt with on hairless parts than on the scalp.

* "Atlas of Vegetable Parasitic Diseases," Bergen, 1892.
† *Arch. Clin. de Bordeaux*, June and July, 1893.

The treatment must be conducted on the same general lines as that of ringworm. The crusts must be removed by thorough soaking with carbolised oil; the head should then be washed with soft soap. Epilation should be practised, and finally parasiticides of the same kind as those used for the destruction of the ringworm fungus should be vigorously rubbed in. If the nails are affected, avulsion may be required so as to allow free access to the parasiticide agent. The appearance of fresh discs must be carefully watched for; when found they should be at once dealt with as before. After apparent cure the patient must be kept under observation for some time.

Tinea versicolor is caused by a special fungus, the microsporon furfur (Fig. 5, 1). The lesions are roundish, slightly raised, scaly patches, with a well-defined border; they are sometimes discrete and irregularly scattered about, but more often they are fused together so as to form large irregular areas, usually more on the front of the body than on the back. The trunk is generally the only part affected, though occasionally the upper parts of the limbs are invaded. I have seen it, too, on the face. The characteristic feature about the lesions is the peculiar brownish discoloration of which they are the seat. The shade varies from "fawn" to "liver"; in persons who have lived in hot climates it is sometimes black, while in coloured races it is grey or white. The discoloration is quite superficial, affecting only the uppermost layers of the epidermis, so that it can, in great measure, be scraped away with the finger nail. The patches, as a rule, spread very slowly. The only symptom caused by the affection is itching, which is not generally very pronounced. In persons who perspire freely, however, the lesions may be the seat of slight inflammation, and even of an eczematoid process; in such cases there may be intense itching.

The disease is contagious, but the fungus requires a particularly favourable soil and prolonged contact before it can take root. Tinea versicolor has been produced by experimental inoculation, both in men and in animals (Köbner). It occurs chiefly in early adult life, and men are rather more liable to attack than women. Profuse sweating prepares the soil to some extent for the fungus, and for this reason phthisical subjects are especially liable to attack. Neither good health nor scrupulous cleanliness, however, is an absolute protection.

The patches of discoloration are composed of masses of strongly-refracting spores, grouped together in masses somewhat resembling bunches of currants amidst interlacing threads of mycelium (Fig. 5, 1). They are easily found, as they are situated in the superficial layers of the epithelium.

The disease is not infrequently mistaken for a secondary syphilide, but any doubt as to its nature can be set at rest by scraping off the surface of the discoloured patch and examining it microscopically.

The treatment consists in thorough washing with soft soap and warm water, afterwards rubbing the part with a flesh brush in order to remove the natural oiliness of the skin. The part should then be treated with iodine, which not only effects a rapid cure, but by its staining power brings into view small and ill-defined spots. If the smell of iodine is objectionable, a strong solution of hyposulphite of soda or sulphurous acid, diluted to one-fourth with water, may be used.

Erythrasma is a somewhat rare disease, and so unimportant that it need only be briefly referred to. It is characterised by the formation of brown patches in warm and moist parts, such as the axilla, the groin, the genito-crural region, and between the

nates. The lesions cause no symptoms except slight itching.

The affection is said to be due to the growth of a vegetable parasite, microsporon minutissimum.

The treatment is the same as that recommended for tinea versicolor.

CHAPTER XVI.

LOCAL INOCULABLE DISEASES (*concluded*).

III. Other Micro-organisms.

The local inoculable affections of the skin which are known to be caused by an irritant of microbic nature are impetigo contagiosa, sycosis, boils, carbuncle, acne, malignant pustule, and Delhi boil.

Impetigo contagiosa is a pustular eruption caused by the inoculation of pus cocci. The appearance of the lesions is occasionally preceded by some amount of febrile disturbance. Soon small erythematous spots come out; on these vesicles form containing a turbid fluid, which rapidly becomes purulent. They soon break and discharge a fluid that quickly dries up, forming yellowish scabs. In persons regardless of cleanliness they are almost always brown, and even black, from dirt. The scabs have no halo of hyperæmia around them, but look as if they were stuck on the skin with gum. Dotted about among them are pustules which often run together so as to form scabs of considerable size. The scabs are at first loose, but afterwards they adhere so firmly to the skin that their removal requires some force and is followed by a little bleeding. The raw surface thus left secretes a thick purulent discharge, resembling honey in appearance and consistence, which in its turn dries into a fresh scab ("honeycomb scab"). The glands in the vicinity not infrequently become enlarged and suppurate. After healing a reddish stain is left, which, after a time, completely disappears. The eruption varies greatly in severity, being sometimes limited to

a few discrete lesions, sometimes extending over nearly the whole body. The exposed parts are more likely to be the seat of the disease than those covered by the clothes. The face is most frequently attacked, the lesions being thickest around the mouth and the nostrils, and on the chin; the occipital region is another favourite situation. In all these places the disease is more obstinate than elsewhere. In some cases the confluence of numerous lesions covers the face with a mask of scabs. Other parts may also be the seat of the disease, the following being the order of frequency in which they are attacked: scalp, nape of neck, neck, upper extremities, hands, lower extremities, belly, back. In parts where the pustules are exposed to friction, as on the limbs, they are generally ruptured in an early stage of their development, and a flat irregular scab, surrounded by a more or less pronounced areola, forms over them. These lesions were formerly believed to constitute a distinct disease, to which the name of "ecthyma" was applied; the condition is, however, so frequently associated with contagious impetigo as to make it certain that they are modifications of the same process.

Duhring describes a form of impetigo distinct from that here referred to, in that it is not contagious, that it is pustular from the first, and that all the lesions come out at once, not in successive crops. My own experience does not lead me to agree with Duhring that any form of impetigo is non-contagious, and the cases to which his description would apply in other points, seem to me to be simply a variety of impetigo contagiosa.

Among the complications of impetigo contagiosa may be mentioned boils and folliculitis. In unhealthy children the eruption is frequently pustular from the first. The disease often occurs epidemically.

In such circumstances it runs a definite course, crops of vesicles continuing to come out for about a week, then drying up, the process being completed in about a fortnight. In the non-epidemic form the affection, if left to itself, may last an indefinite time.

Contagious impetigo is much more common in children than in adults. The scrofulous diathesis is a powerful modifying factor. The exciting agents are the staphylococcus pyogenes aureus and albus, which are found in the vesicles, pustules, and scabs, and in the secretion under the scabs. By the inoculation on himself of pure cultures of these micro-organisms, Bockhardt produced lesions exactly similar to those of impetigo contagiosa. His results have been confirmed by Wickham.* In addition to the staphylococci just mentioned, Leroux says that in four out of five cases he has found a special micrococcus, which he proposes to call streptococcus of impetigo.† The micro-organisms are present in the inflamed tissue in the very first stage of the eruption. Contagious impetigo is closely allied pathologically to sycosis and boils, both of which conditions are caused by the staphylococci, pyogenes aureus and albus. That processes presenting well-marked clinical differences may be caused by the same irritant has already been shown in the section on tuberculosis. The affection is not only contagious from one person to another, but is auto-inoculable, the finger-nails being the chief carriers of the infective material. It is a frequent complication of all conditions in which there is troublesome itching, notably of scabies and pediculosis. It is often a complication of vaccination.

The diagnosis rests mainly on the scabby appearance and discrete character of the lesions, the absence

* *Brit. Journ. of Dermatology*, July, 1893, p. 202.
† *Bull. de l'Académ. de Méd.*, October 25, 1892.

of hyperæmia around them, and the inoculability of the discharge. In favourable circumstances contagious impetigo tends to spontaneous cure in a few weeks, but repeated auto-inoculation may cause it to persist indefinitely.

The treatment consists in the removal of scabs by soaking in carbolised oil and applying a weak mercurial ointment, sulphur, or other parasiticide remedy. The whole of the affected parts and the adjacent skin should be washed with a weak antiseptic, such as boracic acid lotion, as a measure both of cure and of prevention. Scratching should be as far as possible prevented. Inflammatory and other complications must be treated according to the indications. Weakly and ill-nourished subjects will be benefited, locally as well as generally, by cod-liver oil and iron.

Sycosis is an inflammatory process caused by microbic infection, which affects the hairy parts of the face and especially the chin. The disease may attack the eyebrows, the eyelashes, and the axillary and pubic regions in both sexes. The lesions are acneiform papules or nodules which form round the hairs and develop into pustules, each of which is pierced by a hair. They gradually increase in number, and may extend over a large surface. The affection generally begins on the upper lip, and may remain limited to that region. As the suppurative process goes on the hairs are loosened, so that they are easily pulled out, a drop or two of pus generally following them. The pus dries into thin brown or yellow adherent crusts. In bad cases the pustules may be so thickly set together as to form infiltrations which may assume a fungating character. The process never extends beyond the limits of the hairy region. Sycosis does not generally cause baldness, because the papilla is seldom destroyed, the pus lying in a pouch

formed by the lining membrane of the follicle and the outer sheath of the hair. The disease may last in varying degrees of severity for an indefinite period. In very chronic cases there is always a good deal of scarring from previous lesions, and occasionally cheloid may form in the scars. Brocq has described, under the name of *sycosis lupoïde*, a variety of folliculitis which begins at the upper part of the whiskers and travels downwards; there is a narrow erythematous margin, and the process gives rise to marked infiltration, followed by cicatricial atrophy. Sycosis, of course, in its typical form is peculiar to adult males, but folliculitis of the same character may occur in hairy regions in women. The disease is contagious, as Brooke * has forcibly pointed out. It is often conveyed by the shaving-brushes of barbers who are not particular about the cleanliness of their implements.

Pathologically the affection is an inflammatory process starting in the hair follicles; each follicle being, in fact, converted into a small abscess. Sycosis is inoculable from one follicle to another by the transference of pus cocci. According to Unna there are two varieties of sycosis, the coccogenic and the bacillogenic. The exciting cause of the former is the staphylococcus pyogenes albus or aureus; of the latter, the bacillus sycosiferus fœtidus. The former penetrates more deeply into the follicle than the latter. As pus cocci are always present in the atmosphere, it is clear that the soil must be in some manner prepared before they can take root, otherwise the affection would be far more common than it is. Tenderness or excoriation of the skin is, therefore, probably a necessary condition for the development of sycosis. The sebaceous glands are affected secondarily to the hair follicle; the sweat

* *Brit. Journ. of Dermatol.*, Dec., 1889, p. 467.

glands are only occasionally involved. The inflammatory nature of the disease, its origin in the follicles, and its limitation to the hairy parts of the face are characteristic. Eczema is not, as a rule, limited to the hairy parts, and the inflammation in that disease is seldom so severe as in sycosis. Tinea barbæ is distinguished by its commencement in a circinate scaly patch, by the early breaking of the hair, by the pain caused by extraction of the hair, by the shape of the pustules, which are conical and elevated by the lumpy masses on the inflamed surfaces, and by its special fungus. Tertiary syphilitic ulceration is not limited to the follicles, and is associated with a history of primary infection and marks of previous or coincident specific lesions.

Sycosis is always extremely obstinate; and as recurrence after apparent cure is common, the practitioner must not be too sanguine in his prognosis. The treatment is to remove the crusts; then to epilate (a process which, owing to the loosening of the hairs by the pus, is not painful), and finally to apply soothing and antiparasitic remedies. The removal of the hairs opens the little abscesses, and the mouths of the follicles are thus made patent, so that remedies can penetrate to the seat of disease. In mild cases oleate of mercury (1 to 2 per cent.) or weak sulphur ointment may be used. When the affection is more severe, resorcin ointment (2 to 10 per cent.) or Unna's carbolic-mercury plaster-mull should be employed. Ohmann-Dumesnil* says ointments are, as a rule, contra-indicated, especially such as have lard for their base, as this substance when even slightly decomposed forms a favourable breeding-ground for pus cocci. Pure lanolin is not open to the same objection, and may therefore be used as a vehicle for parasiticide agents. He applies one to five hundred bichloride of mercury solution;

* "International Clinics," vol. iii. Second series.

and as a prophylactic measure he recommends patients, after an apparent cure, to use a one in one thousand bichloride solution in the morning; the same for the water with which to make their lather when shaving; and at night to apply pure lanolin to the face, in order to protect it from any possible infection.

Furunculi, or boils, are inflammatory swellings caused by the action of the staphylococci aureus and albus. Their seat is either a follicle, or a sebaceous or sweat gland. They may be single or multiple, in the latter case being scattered about without any attempt at grouping and coming out in crops. In such circumstances the process may last a considerable time, constituting a condition to which the term "furunculosis" is applied. The lesion begins as a minute red papule, which is tender, so that the slightest movement causes pain. Soon induration can be felt, and the boil shows itself on the skin as a nodule of varying size, presenting the classical characters of inflammation. Resolution may take place within a few days, the boil subsiding without suppuration occurring. This constitutes the "blind boil." As a rule, however, it "points" more or less distinctly on the third or fourth day, the pustule being seated on an indurated base, surrounded by a raised red area. The inflammatory zone tends to increase, the skin on the surface of the boil becomes purple, tense and glistening, and finally gives way, about the eighth day, in one or more places. The central part of the swelling is then seen to be occupied by a white pulpy slough ("core"), which is thrown off in a day or two. Before rupture the boil and the skin around it are exquisitely tender, and the heat, tension, and throbbing make sleep impossible. Lymphangitis and lymphadenitis are often set up, and there is usually some amount of constitutional

disturbance. After separation of the core the symptoms subside, and the resulting cavity heals up by granulation, a scar proportionate to the size of the boil being left.

A special form of boil becomes developed in the sweat coils, which has been described by Verneuil, Dubreuilh, and Pollitzer.* The latter records a case in which the cheeks, chin, parts of the neck, and upper part of the shoulder were the seat of successive crops of small tumours, which appeared one or two, or by the half dozen, at a time. The crops came out at intervals of a few days to several weeks, and the process extended over a period of eight months. The lesion began as a nodule deeply seated in the skin. The nodule was at first neither painful nor tender; it became in a fortnight as large as a pea, and slightly painful. The skin over it was red. If one of them were opened at this stage, a drop of pus exuded. If left untouched, after a few days a little pus was discharged, after which shrinking and cicatrisation took place, the whole process occupying about four weeks. Two nodules were excised and examined, when it was found that the tumours were evidently developed in the sweat coils, the coil being, in the first instance, the seat of infiltration, and its intimate structure being finally lost. Pollitzer calls the affection "hydradenitis destruens suppurativa."

Boils may form on any part of the skin, but the parts most frequently affected are the face, the neck, and the buttocks. In the case of single boils local irritation, as by the edge of a stiff collar, or friction, is often the starting-point of the trouble, the slight injury of the tissues thus caused making the part susceptible to the action of the staphylococcus. If the patient is subject to boils, some underlying

* *Journ. of Cut. and Genito-Urinary Diseases*, Jan., 1892, p. 9.

constitutional state, such as anæmia, lithæmia, or glycosuria, may be present. Furunculosis may also be a sequel of acute specific fevers, particularly small-pox, or it may be an expression of some septicæmic condition. Boils may multiply themselves by auto-inoculation, but this does not take place as a rule unless the patient is in a bad state of health, or local conditions favourable to the growth of the pus cocci exist. Boils are common as secondary lesions in many skin affections, notably in scabies and eczema.

The starting-point of the process is a hair follicle or sweat gland.

There can never be any difficulty about the diagnosis, the appearance and course of a boil being absolutely characteristic.

The prognosis is always favourable as regards the cure of any given lesion or set of lesions, but the affection is very apt to recur. Single boils are always amenable to treatment, but auto-inoculation of the pus often makes definitive cure somewhat difficult. In furunculosis the prognosis largely depends on the extent to which the underlying constitutional state can be remedied.

The treatment of single boils depends on the stage which the process has reached. When just commencing they may often be aborted by painting the part with glycerine of belladonna, or with tincture of iodine three or four times a day; by dabbing with a saturated solution of boracic acid; by the application of a compress steeped in spirits of camphor for a few minutes at a time several times a day; or by a solution of nitrate of silver or strong carbolic acid. Unna recommends the use of the mercuric-carbolic plaster-mull as an abortive in the first stage, and as limiting suppuration to the centre, and causing speedy and painless rupture in the later stages. He says the rupture thus brought about is much smaller than

could be made by incision and soon closes under the plaster. In larger boils that have necrosed, the plaster-mull accelerates rupture, or, if an incision has already been made, shortens the time of healing and eases pain.*

When abortive treatment fails or is inapplicable the boil should be incised and scraped out, and an antiseptic dressing—iodoform, carbolic acid, or Unna's mercuric-carbolic plaster-mull—should be applied. As each boil may be a focus of further infection, it should be destroyed or rendered harmless by thorough antisepsis. For the same reason it is altogether unscientific to promote maturation by the application of poultices and fomentations.

Constitutional treatment may be required for furunculosis. Insanitary surroundings should be remedied, and the health improved by measures appropriate to the special indications of the case, lithæmia, anæmia, glycosuria, etc., being dealt with on ordinary principles. The most generally useful drugs are iron and quinine. Duhring finds arsenic, given in doses of one to three minims three times a day, beneficial. Sulphide of calcium, which is recommended by Ringer as almost a specific in furunculosis, has not proved successful in my hands.

Carbuncle may be defined as a boil affecting several neighbouring glands. The process is akin to furuncle, but is more severe in its local effects and accompanied by greater constitutional disturbance. The lesion commences as an infiltration in the subcutaneous tissue or deeper parts of the true skin; it is at first slightly raised, firm, rounded in outline, and bright red on the surface. In mild cases retrogression may begin at the end of a week, and complete resolution may take place. In most cases,

* "Selected Monographs on Dermatology." New Sydenham Society. London, 1893, p. 88.

however, the process extends, and in ten days or a fortnight forms a deep-seated, circumscribed swelling as large as the palm of the hand or larger, with a brawny base, the skin over it being of a purple colour. Softening takes place in the centre, and the surface becomes dotted with suppurating points, which break, giving issue to blood-stained pus. This cribriform mode of rupture is characteristic of carbuncle. The carbuncle often continues to spread even after the pus has found a vent. The skin between the holes sloughs, and the necrotic mass or core underneath slowly separates—taking from fourteen days to two months in the process,—sometimes as a black, dry eschar, sometimes as a pultaceous mass, more frequently as a yellow, ragged slough, with a most offensive smell. The neighbouring glands are usually swollen. The process is accompanied by rigors, fever, aching in the back and limbs, and general malaise. Death may result, especially in elderly or weakly subjects, from septicæmia or exhaustion, especially when the lesion occurs on the face. After separation of the slough a deep, irregular cavity is left, which heals by granulation; a dense, puckered scar, which is not infrequently pigmented, resulting.

Carbuncle is generally single, and occurs especially where the skin is thickest—on the nape of the neck, on the back, the buttocks, shoulders, and fore-arms. It is sometimes seen on the face.

Pathologically, the process is identical with that of furunculus, but the inflammation is deeper and more destructive. It is generally believed to begin in the pilo-sebaceous follicles and sudoriparous glands.

The exciting cause of carbuncle is, as in furunculus, an invasion of staphylococci. Men are more frequently attacked than women Anything that tends to lower vitality may be a predisposing cause,

diabetes, in particular, being often associated with it. It may, however, occur in persons apparently in perfect health.

The diagnosis of carbuncle can seldom be doubtful, the multiple yellow points and openings being sufficient to distinguish it from furuncle; and these features, together with its circumscribed outline, differentiate it from diffuse cellulitis.

A guarded prognosis should always be given in cases of carbuncle, as death from septicæmia is not uncommon. The size and position of the swelling, and the age and state of health of the patient, are the chief points on which the prognosis must be based.

The treatment for small carbuncles is the same as for boils. The free painting of the surface with glycerine of belladonna will ease the pain, reduce the inflammation, and possibly bring about resolution. Unna recommends the application of a mercury-carbolic plaster-mull, the parts being bathed with a solution of ammonia or alkali before a new plaster is applied. If the skin is about to break a crucial incision should be made and the necrotic contents of the swelling cleared out with a sharp spoon. The cavity should be well scraped and all the friable tissue removed, and the cavity should be syringed out with some strong antiseptic solution such as carbolic acid, and finally filled with iodoform; subsequent treatment being on the accepted lines of antiseptic surgery. Constitutional treatment is always required. It should be directed to supporting the patient's strength by every available means—liberal diet, and the free use of tonics, especially perchloride of iron and quinine. If the pain is very severe morphia should be given, preferably in the form of hypodermic injections. Stimulants should be withheld till the slough has been cleared out, after which wine, such as port or burgundy, may be given with great advantage.

Malignant pustule is a disease caused by inoculation with the virus of anthrax, the splenic fever of animals. The inoculation gives rise to skin lesions followed by signs of constitutional infection. The most common site of inoculation is an exposed part of the skin, such as the face, the neck, or the hands. The development of the initial lesion is preceded by local itching and burning; and at the spot to which these sensations are referred a livid red papule soon appears. On this a bulla or a pustule quickly forms and soon breaks, drying up into a black gangrenous eschar fringed with tiny vesicles or pustules and surrounded by a wide zone of solid œdematous infiltration, the skin over which is tense and violaceous in colour. The gangrenous process may spread rapidly, the process soon ending in death; or it may be localised, in which case a slough is thrown off and the resulting sore heals by granulation. The constitutional symptoms are those of septic fever, to which the patient may succumb within a week or less. In less severe cases recovery takes place slowly.

The etiology of the disease is implied in its definition. Inoculation takes place from handling the hides of diseased animals, and butchers, wool-sorters, etc., are therefore most liable to infection.

The pathological process is local inflammatory reaction, followed by gangrene and general septic phenomena, due to the introduction of a specific irritant, the anthrax bacillus. This is a rod-shaped microorganism which grows in the blood and all the tissues.

The diagnosis rests on the presence of a gangrenous patch surrounded by infiltration in a patient whose occupation exposes him to infection with the virus of anthrax.

The prognosis depends on whether the gangrenous process continues to spread or not. The severity of

the constitutional symptoms must also be taken into account. The mortality varies from one-third to one-half of those attacked.

The most efficacious treatment is the immediate and thorough excision of the initial lesion, or free scraping on the lines indicated for the treatment of carbuncle.

Dissection wounds.—The inoculation of septic material from a dead body, as when the hands are pricked or scratched in dissecting or post-mortem work, may give rise to pustules or small abscesses at the seat of injury, or to lymphangitis and cellulitis, which may be followed by pyæmia. The skin lesions must be treated antiseptically, and constitutional symptoms, if they arise, be dealt with on general principles.

Acne has been placed in this group, although its title to be looked upon as an inoculable affection in the strict sense is somewhat questionable. It is certainly the least inoculable of any of the diseases included in the group under consideration, but its pathological affinities with boils and other suppurative lesions in which staphylococci play a leading part, make its provisional inclusion in the same category convenient. Acne is an inflammatory process in and around sebaceous glands, leading to the development of pustules and sometimes to scarring. The inflammation generally supervenes on occlusion of the duct. The plug causing the blockage may be the sebaceous secretion itself, formed in excess and mixed with epithelial *débris*, etc. (acne vulgaris), or some greasy material, *e.g.* tar, derived from without. The latter and other forms of artificial acne caused by drugs and chemical substances will be found described in the chapter on "Artificial Eruptions." The inflammatory process may also be primarily due to local circulatory disorder, sebaceous obstruction being a secondary occurrence, as in rosacea.

In **acne vulgaris** the obstruction may be at the mouth of the sebaceous gland-duct, the plug being visible on the surface as a small black point (comedo), or in the gland itself, when the obstructing material is seen as a tiny whitish mass in the substance of the skin (milium). The primary lesion is a red papule, which may become pustular, the pustule being seated on a raised red base. The affection is met with in varying degrees of severity, from a few scattered papules to numerous lesions in all stages of development. The process may be arrested in any stage, some lesions undergoing involution, while others suppurate and, in course of time, rupture. The individual lesions, as a rule, run an acute course, but the affection, as a whole, is chronic, fresh crops of papules and pustules coming out as others disappear. The pus may be discharged without any visible scar being left, but where the suppuration has been extensive and deep considerable scarring and consequent deformity may result. On the back, cheloid occasionally forms in the cicatrices (acne cheloid). In some cases the inflammatory process extends to the tissues round the sebaceous gland, and a hard red or purplish nodule is formed, which seldom ruptures, but leaves a livid indurated swelling which slowly disappears (acne indurata).

The favourite situations of the lesions of acne vulgaris are the face, especially on the cheeks, nose, forehead, and chin, the back of the neck, the back between the shoulders, and the chest. The affection may, however, develop wherever there are sebaceous glands; thus it is sometimes seen on the back of the thigh and arms. The lesions are tender but do not itch, and beyond the unsightly appearance the affection gives rise to no inconvenience. The skin between the lesions is usually more or less greasy.

The predisposing causes of acne comprise (1) an anatomical factor, (2) certain physiological factors; and (3) a bacteriological factor, although the exact measure of its importance is for the present somewhat doubtful. The anatomical factor consists of a structural coarseness of skin, which, from its excessive richness in large sebaceous glands, is naturally greasy and especially liable to retention of secretion. The physiological factors are (*a*) age, (*b*) reflex circulatory disorder. Acne vulgaris is essentially a disease of puberty, and as the time of the great physiological change indicated by that term varies within considerable limits, the age at which acne shows itself ranges from twelve to twenty-five years. With the advent of puberty certain glands undergo great and rapid development, and in particular there is a growth of new hair in certain parts. These changes in persons whose sebaceous glands are already inclined to over-activity are likely to be followed by plugging of the ducts, and consequent interference with the capillary circulation around the gland and tendency to inflammation. These conditions are increased by reflex circulatory disturbance due to the strain thrown upon the nervous system by the changes taking place at puberty, aggravated in many cases by disorder of the digestive organs, functional disturbance or irritation of the sexual apparatus, anæmia, and in some cases probably educational over-pressure. Lastly, the sebaceous matter plugging the duct becomes a suitable soil for micro-organisms. There is at present no evidence to show whether these are primary or secondary factors in the acne process. The demodex folliculorum (Fig. 4, c), which is found in comedones, appears to have no etiological importance. It is not improbable, however, that further research will lead to the discovery of a specific micro-organism as the cause of acne. In the suppurative stage

staphylococci are present. According as one or other of the factors mentioned is preponderant, sub-varieties of acne may be produced.

The pathological process is an inflammation arising in the sebaceous glands in the manner already indicated, and in many cases running on to suppuration. Inflammatory changes are always present in the connective tissue around the follicle. When suppuration occurs, the pus may, if slight in amount, escape by natural drainage through the duct, and the gland may in this way escape destruction; usually, however, both the gland and the follicle are destroyed, and more or less of the perifollicular tissue undergoes necrosis, with consequent scar formation. In acne indurata there is fibrosis for some distance around the follicle.

Acne vulgaris can, as a rule, be recognised without any difficulty by the presence of comedones, the discrete character of the eruption and its distribution, and the patient's age. Artificial acne must be excluded by inquiry into the patient's occupation and recent medical history. Rosacea is most common in middle life, chiefly affects the "flush area" of the face, and is markedly congestive in character, dilatation of superficial vessels being a conspicuous feature. Pustular syphilides are generally grouped, which is never the case with acne pustules, and there is other evidence of the disease.

Acne vulgaris, even if left untreated, tends in the course of years to disappear. The duration of the affection can, however, generally be considerably shortened by treatment.

The treatment is preventive and curative. Patients, the texture of whose skin predisposes to retention of the sebaceous secretion, should wash thoroughly several times a day, with the object of clearing away the coarse epidermis, keeping the mouths of the

ducts open, and stimulating the circulation. The face and other parts liable to attack should be vigorously scrubbed with soap and flannel. As a further measure of prevention, some stimulant and parasiticide ointment should be rubbed in; for this purpose sulphur ointment (10 grs. to the ounce) is very useful. The general health must at the same time be attended to. Alcohol, tea, coffee, and all stimulating food that causes reflex flushing of the skin, should be avoided. Smoking and sexual excitement are likely to be injurious for the same reason.

Curative treatment includes local and general measures. If suppuration has not yet occurred, the comedones should be squeezed out by means of an instrument suitable for the purpose; the part should then be washed frequently and energetically with soft soap and coarse flannel. A mixture of spirit and soap, such as the spiritus saponis alkalinus of Hebra, is useful in dissolving and softening the sebaceous matter. The skin should be disinfected by applying sulphur ointment (10 grs. to ʒj), resorcin (gr. xv to ʒj of lano-vaseline), ichthyol, or carbolic acid in the form of ointment. When suppuration has occurred the pustules should be punctured or incised, and afterwards bathed with hot water so as to encourage bleeding, and then dressed antiseptically. The cavity may with advantage be touched with strong carbolic acid solution. Each pustule must be treated individually, and the method requires perseverance, but is effectual. When the inflamed papules are of considerable size, each one should be isolated by covering it with Unna's mercury-carbolic plaster-mull. This should be left on for about twelve hours or more; after removal the part should be dried with cotton-wool, then washed with corrosive sublimate solution (1 in 2,000), and covered with a fresh piece

of plaster. In all cases of acne, reinfection from the clothing should be prevented by frequent changes of the garment worn next to the affected part (back or chest), and washing the adjacent unaffected skin with an antiseptic wash or soap.

Constitutional treatment must be directed to the rectification of any functional disorder that may be a possible source of reflex circulatory disturbance. Particular attention must be paid to the diet and habits on the lines already laid down in speaking of prevention. The best tonics are, generally speaking, quinine and arsenic, but the special indications of the case must be taken as guides. When the patient presents evidence of a scrofulous taint, cod-liver oil and syrup of the iodide of iron must be given. Careful regulation of the mode of living is, however, of more use, as a rule, than drugs. The patient should be instructed to wear suitable clothing,—that is to say, such as keeps the body comfortably warm without causing irritation—to take proper exercise, to bathe frequently (the Turkish bath being especially useful for those whose internal organs are sound), and to live a wholesome life in hygienic surroundings.

Acne varioliformis is a somewhat rare form of acne, characterised by red flat papules, which become pustular, and then dry up, forming scabs. The latter are at first limited to the centre of the lesion, which is depressed below the level of the periphery. Later the scab covers the whole surface of the papule, and on separating it leaves a small depressed permanent scar resembling a small-pox "pit." This process is regarded by some as a local necrosis; hence the affection is sometimes called acne necrotica. A distinctive feature of this affection, as compared with acne vulgaris, is that the lesions are grouped. The forehead is the part most commonly attacked, but the scalp and the face may be the seat of the eruption, which has

also been seen on the chest and back. The affection causes no inconvenience beyond a little itching, and the unsightliness of the lesions when they are on the face. Both sexes seem to be equally liable to this form of acne; it is rare under the age of thirty. Some authorities consider it to be connected with syphilis, but with this view I do not agree. According to Touton the process is inflammatory and leads to necrosis of the cutis and overlying epidermis. In a case in which he made careful observation he found four species of micro-organisms, but he is inclined to look upon their presence as secondary and probably determined by the antecedent changes in the integument.*

Acne varioliformis can be identified by the absence of comedones, by the grouping of its lesions, the pitting which it leaves, and its preference for the forehead (which is so marked that it is sometimes called acne frontalis).

It is curable, but recurrence is almost certain.

Treatment must be directed to the improvement of the general health. Iron and cod-liver oil are particularly useful. The local treatment is that recommended for acne.

Among other rare varieties of acne may be mentioned one described by Tilbury Fox as "disseminated follicular lupus," but evidently having little or no affinity with the lupus process. According to Crocker,† who saw the cases, the lesions were very like those of what is now known as adenoma sebaceum, but more conical and disseminate, and not massed together at the naso-labial fold. Microscopically, there was fibro-cellular infiltration, chiefly in and around the sebaceous glands. The only treatment of any use was the careful application of acid nitrate of mercury.

* *Brit. Journ. of Dermatology*, 1892, p. 265.

† "Diseases of the Skin," second edition, 1893, p. 711.

Another rare form of acne is described by Crocker * under the name of "acne keratosa." It resembles an acne in which the place of the comedo is taken by a horny plug, the presence of which excites inflammation. This plug was apparently formed in the hair follicle instead of in the sebaceous gland. The eruption was situated about the nose, cheeks, and forehead, on the neck, the extensor aspect of the upper limb, and on the thigh. The lesions, when fully formed, were inflamed indurated nodules with a flattish top, which softened in the centre almost like a carbuncle, the central mass, however, being slow in separating. The general health was good, and treatment had no particular effect. Ultimately the patient was found to have recovered without special treatment.

Acnitis.—The condition described under this name by Barthélemy † is probably a form of hydradenitis akin to that described by Pollitzer under the name of "hydradenitis destruens suppurativa" (page 334).

Furunculus Orientalis (Delhi boil, Aleppo boil, Biskra button,) is a tropical disease, the lesion of which is a boil which breaks down, forming a foul ulcer. The process is unattended with constitutional disturbance. It has been proved to be inoculable both in men and in animals, but the particular parasite responsible for its production has not yet been identified. There is some evidence that the poison is waterborne, and is conveyed into the system either by drinking or washing. The treatment is the same as for boil or carbuncle. ‡

Pinto, *carate*, or "spotted sickness," is an affection endemic in the tropical regions of America. It is

* Op. cit., p. 711.

† *Ann. de Derm. et de Syph.*, January, 1891.

‡ For a further account see a paper by J. Murray, Trans. Epidem. Soc., 1883, p. 90.

characterised by a peculiar discoloration of the skin, with continuous desquamation. Four forms of the affection are described—grey, blue, red, and white—but they are all varieties of the same process. The disease is probably caused by a fungus, though some authorities are more inclined to attribute it to bacillus.* In the grey—also called the black—variety spots of a leaden hue appear on the face, the tint deepening almost to black as they spread. The spots are irregular in shape, slightly scaly, and do not disappear on pressure; the discoloration cannot be rubbed off. The whole face may be blackened, making the patient look like a negro, but usually there are patches of normal or less discoloured skin. Patches of discoloration also appear on the limbs, especially in the parts rich in pigment and most exposed to the sun, such as the external surfaces of the arms and legs, the dorsum of the foot, the back of the hand, the extensor aspects of the joints, etc. The trunk may also be the seat of similar lesions, but the whole of the skin is never invaded. Sometimes there is considerable itching, and then desquamation is more active. After a time the affected surfaces become harsh and rough, and the skin appears to be thickened and more vascular than normal. In this stage the patients often give off a penetrating musk-like odour. There is no sensory or other functional alteration in the skin.

The blue variety also affects the face and the limbs. The spots, which are more irregular in outline than in the grey variety, are of a bluish tint, sometimes of a leaden-grey shade, sometimes violet, sometimes dark indigo blue. The discoloration in

* See a "Report on Carate to the Hygienic Committee of the Department of Cauca, Republic of Colombia," published in the *Boletin de Medicina del Cauca*, March, 1893. On this Report the description of the disease here given is largely based.

some cases occurs in numerous small patches, giving the patient a "spotted" appearance; in others it is diffused so generally over the body that the prevailing colour of the skin is blue.

In the red variety, which attacks, by preference, fair persons with a delicate skin, the distribution of the lesions is the same as in the two already described, but the patches of discoloration are smaller. The affected parts are blood-red, or sometimes of the colour of beetroot. The skin is rough and vascular, and is often marked with fissures, which bleed easily. Itching is intense; the skin is dry and hyperæsthetic. This variety is the most contagious. It is often associated in the same person with the two previously described.

The white variety is the terminal stage common to all the others. The spots of discoloration begin to fade in the centre, and gradually die away to a perfectly white tint, especially in parts where the skin is thin, as on the extensor surfaces of joints. In rare cases the spots are yellowish from the first and soon pass into the white stage, without ever having been red, blue, or grey. In such cases the disease is limited to certain regions, such as the roots of the hair, the parts about the eyes, and the hands and feet.

There is some doubt whether the disease was imported into America from Africa by the negroes, or whether it is indigenous. At the present day it is so generally prevalent among negroes that it has been said that none of them escape it.*

The physicians of Colombia are almost unanimous in looking upon the affection as not directly contagious. They believe, however, that it is probably

* In the official document already referred to the following words occur: *Puede decirse que todo negro es caratoso o lo será.* (It may be said that every negro suffers or will suffer from spotted sickness.)

parasitic, though the micro-organism, whether fungus or bacterium, has not yet been identified. In the regions where it is endemic there is a general belief that the inoculative material is conveyed by mosquitoes. A tropical climate, dirt, and pre-existing inflammation of the skin are predisposing factors. Both sexes are equally liable to attack, and no age, except early infancy, is exempt. The affection is rare among well-to-do people.

The disease may be mistaken for macular leprosy, but there is no anæsthesia, and the spots do not fade and reappear as in that affection. From leucodermia it is differentiated by the variety of the pigmentation, the itching, and the roughness of the skin. From tinea versicolor it is distinguished by the coloration, and by the distribution of the patches, which are mostly situated on parts of the skin exposed to the light, whereas the microsporon furfur affects covered regions such as the chest and the belly.

The treatment is the same as that recommended for tinea versicolor. With regard to prevention, close contact with patients suffering from the disease should be avoided: and in regions where it is endemic the local practitioners recommend that mosquito stings should be at once treated with an antiseptic application, such as carbolised oil, boracic acid ointment, etc. The question of *carate* in Colombia seems to be in much the same position as that of leprosy in India. The Report which I have quoted was presented in compliance with a request from the Government, which, in view of the increasing prevalence of the disease, wished to know whether measures of segregation would be advisable.

Mycetoma (Madura foot; fungus foot of India) is endemic in some parts of India, especially in Madura. It occurs in two varieties, black and pink, or, as Vandyke Carter prefers to call them, "melanoid"

and "ochroid." The pink form is the more common. The distinctive feature of the black variety is the presence in the affected tissues of black granular particles resembling gunpowder in the earlier stages, and in later stages of black or dark-brown truffle-like masses. The latter exhibit a faint pink mould in the earlier stages of development, and at a more advanced period characteristic pale-red, ovoid bodies resembling fish roe. The pink mould is also visible in the pink variety of mycetoma. Carter maintains that this mould is of fungous nature, but Tilbury Fox and others contended that the roe-like bodies are essentially of a fatty nature. The disease, as a rule, affects the foot or the leg, sometimes the hand, in rare cases the shoulders and the scrotum. On the foot it begins with slight swelling and redness or local induration. In an advanced stage of the disease the foot is greatly swollen, the swollen surface being dotted with little nodules, in each of which is the opening of a sinus, from which comes a thin sero-purulent discharge containing rounded granules. Similar granules are visible on the little tumour around the mouth of the sinus. The pathology is simply disintegration of the foot by the fungus. The fungus was identified by Vandyke Carter, and is called the chionyphe Carteri. It is closely allied to, if not identical with, the ray fungus which is the cause of actinomycosis hominis (Kanthack, Crookshank).*

Actinomycosis is a parasitic affection which chiefly affects the bones and the viscera and only in rare cases the skin. The cause of the lesions is the ray fungus, which is believed to be derived from corn or hay. It may be conveyed to man by the sucking of straws and especially the picking of carious

* For further information as to Madura Foot, see Surveyor, *Brit. Med. Journ.*, Sept. 10, 1892, and Boyce and Surveyor, *Lancet*, April 22, 1893.

teeth therewith, or by contagion from cattle or horses themselves suffering from the disease or, in very exceptional cases, from man to man. Deep-seated suppurating tumours are produced in bone or other of the deeper structures, and as these enlarge they gradually approach the surface, the skin over them presenting the usual appearance characteristic of abscess. The process is very chronic, and there is comparatively little pain. In course of time the skin breaks and sero-sanious or purulent fluid, containing peculiar sulphur-yellow granules, is discharged. If these granules are examined microscopically, the actinomyces, the ray-like fungus causing the disease, will be found (Fig. 5, G). Males are, from their greater exposure to infection, more liable to the disease than females. Pathologically, actinomycosis is an inflammatory process excited by the ray fungus, which occasionally involves the skin. The diagnosis will be made clinically by a process of exclusion. A tumour, especially if situated in the skin near the jaws, which presents neither the characters nor the symptoms of a malignant growth, a syphilitic gumma, a glanderous abscess, or lupus, should suggest the idea of actinomycosis, and a positive conclusion will be reached by puncturing and examining the contents for actinomyces. The prognosis depends on the situation of the lesions. If these can be thoroughly removed the disease can be cured ; otherwise it will end in death.

The treatment of actinomycosis belongs to the domain of surgery ; it consists in the completest possible removal or destruction of the diseased tissues.

Elephantiasis Arabum is a disease of tropical and sub-tropical countries, and only very rarely seen in Europe. It is characterised by chronic hypertrophy of the skin and subcutaneous tissue, giving rise to enormous enlargement of a particular part of the body, generally one, and in rare cases both, of the

lower limbs; sometimes it is the scrotum or one of the labia that is affected. The face is occasionally the seat of the disease. It is often ushered in by febrile disturbance ("elephantoid fever"). The part attacked becomes rapidly swollen, owing to inflammation of the lymphatics, the skin being tense and red as in erysipelas. There is great infiltration of the areolar tissue, and vesicles and bullæ often form and discharge a serous or chyle-like fluid. When fully developed the limb is often three or four times its natural size, the swelling being hard and solid for the most part, though pitting moderately under strong pressure. The surface is often roughened by a network of dilated lymphatic vessels; varicose ulcers also frequently form. Exacerbations may take place at irregular intervals, their occurrence always being heralded by febrile disturbance. Except at these times there is generally little pain, but the patient is greatly inconvenienced by the bulk of the affected part. After some years the attacks of fever cease, and the part remains permanently swollen. The scrotum sometimes forms a tumour reaching quite to the ground, and weighing over a hundred pounds. Cutaneous lesions of an eczematous type, which give rise to much itching, are frequent complications. The tension is often so great that the integument gives way, and milky fluid escapes. The patient is much weakened by the loss of this fluid.

The condition is the result of plugging of the lymph channels of the affected part. This has been shown by Manson and others to be due, in tropical countries, to the filaria sanguinis hominis (Fig. 4, H), which takes up its abode in the lymphatic trunks, and discharges its ova into the lymph stream; obstruction of the lymphatic circulation is brought about by the embryos, either mechanically, or by setting up inflammation. Lymphatic obstruction may also be the result of

violent or repeated inflammation, as in erysipelas, phlegmasia dolens, long-continued eczema, etc.; in fact, anything that interferes with the lymphatic circulation may cause elephantiasis. The disease spares neither age nor sex, but is more common in men; it is sometimes congenital. A malarious climate and poor living are predisposing factors. Where it is endemic, its geographical distribution appears to coincide with that of the mosquito, which is the intermediate host of the filaria (Manson). The principal change is in the subcutaneous tissue, which is greatly hypertrophied; the corium and epidermis are also considerably thickened, and papillary growths are not uncommon. The vessels (both blood and lymph), muscles, fasciæ, nerves, and bones, are also greatly enlarged.

The disease can sometimes be checked by removal from a district where it is endemic. The symptoms can generally be mitigated by treatment directed to the improvement of the health, and by soothing applications to the affected part. In confirmed cases of elephantiasis of the leg or scrotum there is no cure but amputation. Compression of the swollen part by means of a Martin's elastic bandage, combined with low diet, may be of service in reducing the bulk of the tumour. Electricity has also often given good results. A galvanic current of 40 to 60 Trouvé elements should be applied from five to ten minutes with the positive pole on or near the sound part, and the negative at different spots in the affected region.

CHAPTER XVII.

GENERAL INOCULABLE DISEASES.

Scrofulodermia—Tubercular Ulcers—Verruca Necrogenica—Lupus Vulgaris.

Tuberculosis, syphilis, leprosy, yaws, and glanders, have this feature in common: that each of them is caused by a specific micro-organism, and is therefore inoculable from one patient to another, although the period necessary for such inoculation to take effect and other conditions differ widely. That tuberculosis and leprosy are engendered and transmitted by microbes has been fully proved by pathological research; and as regards syphilis, although the micro-organism which produces and conveys the poison has not yet been identified, the clinical evidence makes it certain that the disease is of parasitic nature. Glanders and yaws are also diseases in which the inoculation of a specific virus is followed by general infection, and are therefore unquestionably parasitic, though there may still be some doubt as to the particular microbe which initiates the process in each case.

Scrofula and Tubercle.

Before studying the effects of tuberculous infection on the skin, it will be well, for the sake of clearness, to define terms and to indicate the relation in which scrofula stands to tubercle. The progress of pathology has now definitively assigned to tubercle so much that used to be thought to belong to scrofula that there is some danger of the latter being swept away altogether. The reason of the confusion on this

subject that still exists to a certain extent is that the term "scrofula" has been used not only as expressing a particular constitutional state, but as connoting a variety of diseased conditions. Scrofula is not a disease, but a special predisposition thereto; it is a state of soil in which bacilli—especially tubercle bacilli—readily flourish. In view of the strong affinity of the tubercle bacillus for the strumous diathesis, scrofula might almost be defined as potential tuberculosis. It is not, however, for tubercle alone that scrofula prepares the way, but for many other diseases. The condition, in fact, is one of abnormal vulnerability to slight injuries. Lesions in a scrofulous subject are apt to take on a character of chronic inflammation of a peculiar type, in which a tendency to suppuration and the formation of unhealthy sores are the most marked features. Mucous membranes become the seat of catarrh on very slight provocation, and lymphatic glands readily become enlarged. The want of power of resistance in scrofulous subjects is seen in the fact that they suffer more severely than other persons from syphilis and gonorrhœa; and in them scarlet fever, measles, etc., are more likely than usual to run a fatal course. Such persons are also generally considered to be more liable to acute periostitis and necrosis of bone than healthy people. Their tissues are especially vulnerable not only to traumatic influences, but to the action of pathogenic micro-organisms of all kinds, especially, as already said, to the bacillus of tubercle. To sum up, scrofula is merely a special delicacy of tissue, making it abnormally sensitive to injurious influences of all kinds. Tubercle, on the other hand, is a new growth, presenting peculiar anatomical characteristics, and giving rise to definite lesions, which, though varying in appearance according to the situation in which they occur, and other circumstances, are the result of a process which is essentially the same in them all.

Tuberculosis.

The anatomical element of tubercle is a nodule consisting of a rounded mass of cells, containing in its centre one or more large multi-nucleated cells with branching processes—the so-called giant cells. These used to be thought to be characteristic of tubercle, but they are now known to occur in other conditions. Tuberculosis was first shown by Villemin to be an infective process, and in 1882 the specific micro-organism causing the lesions was demonstrated by Koch. The tubercle bacillus (see Fig. 5, A) is a rod-like organism, about one-third of the diameter of a red blood-corpuscle in length, and slightly curved longitudinally. It has no independent power of movement.

The bacillus appears to have a special affinity for the giant cell, which is, so to speak, its ordinary dwelling-place. In slowly growing tubercle very few bacilli are present, sometimes only one in each giant cell; hence it is often extremely difficult to discover them. Koch demonstrated the bacillary nature of tuberculosis by finding the micro-organisms with the microscope, and by cultivating them to many generations outside the body; inoculations of these cultures in animals gave rise to genuine tuberculous disease, and from the affected tissues the micro-organism was recovered. Tuberculosis, therefore, is a form of chronic infective inflammation caused by the irritant action of the specific micro-organism and its chemical products. The disease spreads by infection of the neighbouring parts, and the virus may be carried to distant regions by wandering cells which enter the lymph-stream. The natural tendency of the tubercular nodule is to undergo fatty degeneration. After this it may dry up, and, becoming encapsuled in a fibrous envelope, may remain unchanged for an indefinite

time; or it may soften, break down, and suppurate, and in this way be eliminated; or it may calcify, and at a later period become encapsuled. The particular change which the yellow mass of tubercle undergoes depends on its situation. Calcification is almost unknown on the skin.

The infective power of the tubercle bacillus is not great; diminished resistance in the tissues to which it may gain access is a necessary condition of its taking root and reproducing itself. The situation of the disease is often determined by some previous injury. Insufficient and unsuitable nourishment, exposure and other unfavourable conditions of life, especially deprivation of light and fresh air, and insanitary surroundings of any kind, have a marked influence in preparing the soil for the multiplication of the bacillus.

The lesions of the skin now known to be of tubercular origin include (1) those conditions formerly called scrofulous, and still, for convenience, grouped under the common term of scrofulodermia; (2) the tubercular ulcers, strictly so called, occurring in regions exposed to direct infection in persons suffering from pulmonary or intestinal tuberculosis; (3) verruca necrogenica, or post-mortem wart; and (4) lupus vulgaris.

Scrofulodermia.—Under this heading the following conditions are included:—1. Lichen scrofulosorum; 2. Erythema induratum scrofulosorum; 3. Strumous ulcers.

Lichen scrofulosorum.—This disease, which is improperly called "lichen," is characterised by a papular eruption, the elements of which are seldom larger than a pin's head, and are flattened and very slightly resistant. They are red in colour, the tint varying from light pink to violet. They are at first arranged in groups, forming patches of varying size. At the summit of each papule is a little scale, or

more rarely a small pustule. In addition to the grouped papules there are others arranged in arcs of circles, which are chiefly seen about the orifices of the sebaceous glands. The eruption is attended with very slight itching. It may last for months without undergoing any visible change, and finally disappears completely by a process of very gradual exfoliation of the epidermis. The seat of the eruption is generally the trunk (back and lower part of abdomen). At first it consists of isolated groups of papules, but in course of time other groups form near them, and the affection becomes generalised. In this state the whole skin is of a dirty reddish-brown colour, and is covered with thin scales which are easily detached. The course of the disease is extremely slow.

In ninety cases out of a hundred, according to Kaposi, the patients are the subjects of enlarged submaxillary, cervical, and axillary glands. In a few of the cases other evidences of tuberculous disease are present in the form of necrosis of bone or scrofulous ulceration of the skin. A certain proportion of the patients either suffer from phthisis or have a phthisical family history. The disease, according to Kaposi, is never seen in perfectly healthy persons. The disease is not common after the age of twenty, and sex appears to have little influence in engendering a tendency to it. The tuberculous diathesis is the only etiological factor that has been suggested. The lesions appear to be purely inflammatory in nature. The process beginning in the hair follicles and neighbouring sebaceous glands, each papule is situated close to the orifice of a follicle. The papule is formed by infiltration of the papillæ, and the central scale, or small pustule, on the top of the papule is constituted by the heaping up of hypertrophied epidermis or exudation at the orifice of the follicle.

The disease can be identified by the homogeneity

of the papules, by their arrangement in groups, by their being situated chiefly on the trunk, by their painlessness, by their not projecting much from the surface of the skin, and by the absence of itching. These features, taken in combination with the youth of the patient, are sufficient in most cases to identify the disease. It sometimes closely resembles papular eczema; but in that complaint itching is usually very troublesome, and the papules are bright red and not limited to the trunk. From lichenoid syphilides lichen scrofulosorum is differentiated chiefly by the absence of any other sign or history of syphilitic infection. Moreover, in the former the papules are not generally arranged in groups, but mostly in circles, and they generally affect the bends of joints. They are also very hard and have a shiny aspect. Lichen scrofulosorum can always be cured, and even if left to itself is not likely to cause any particular inconvenience. Lichen scrofulosorum must be treated locally by soothing and mildly antiseptic applications, such as calamine lotion or boracic acid ointment, and generally by measures appropriate to the underlying constitutional state.

Erythema induratum scrofulosorum was first described by Bazin, and has recently been exhaustively studied by Colcott Fox.* I have seen several examples of the affection. The special lesions are chronic inflammatory deep-seated nodules, which develop chiefly on the legs and also in other parts. These nodules often closely resemble syphilitic nodular gummata. The lesions, which are painless, are at first subcutaneous, and can only be felt, not seen. They affect the back rather than the front part of the leg; the skin over them occasionally presents a violaceous discoloration. They are generally discrete, but sometimes become fused together, so as to form a solid

* *Brit. Journ. of Dermatology*, August, 1893.

mass of infiltration. They are apt to break down into irregular ulcers. The large majority of patients are young girls, and the disease is particularly common in washerwomen and other women whose occupation involves much standing. When ulceration occurs the affection is generally taken to be syphilitic, but in typical cases no evidence of syphilis is present, and anti-syphilitic treatment does harm rather than good. In many cases the patients present clear signs of scrofula, but sometimes they seem, save for the local affection, to be perfectly healthy. The treatment is rest in the horizontal position, compression by bandaging, and cod-liver oil internally.

Strumous ulcers arise on the skin in different ways: (1) by extension of the inflammatory process from caseating lymphatic glands to the skin covering them; (2) by the formation of a nodule or circumscribed induration under the skin, which becomes involved in the process; (3) by extension from bone which is the seat of tubercular osteomyelitis. When a gland is the starting-point of the process, the skin over it becomes red and infiltrated, and often adheres to the gland; after a time the skin breaks, sinuses form, and the tubercular process becomes complicated by more or less profuse suppuration, owing to the entrance of pyococci. When nodules develop under the skin independently of glands, they give rise to what Erichsen calls "subcutaneous scrofulous abscess." The skin over the nodules is raised, and at first dusky purple in hue; then, as the underlying growth softens, it breaks, giving issue to a thin curdy discharge, and an ulcer is formed bordered by dark-bluish thin undermined skin, the vitality of which is too feeble to allow of any attempt at repair. The edge is sometimes sharp cut, but more frequently ragged; the floor is grey and irregular, the granulations are flabby and covered with unhealthy pus. These

ulcers generally spread slowly but steadily, and in this way large indolent sores may be formed which are sometimes covered with heaped-up crusts simulating rupia. Such ulcers are common on the face and on the hands (where the process may extend to the bones, constituting one form of strumous dactylitis), and they are not infrequently seen on the feet and on the buttocks. In a gentleman under my care the elbows and knees were the seat of the affection. Healing seldom takes place spontaneously. These ulcers are, as a rule, seen in young people who have the notes of the scrofulous constitution plainly written on them in their physiognomy, or in the marks of similar lesions on the neck, the nose, the eye, or elsewhere. Flat ulcers, with clean-cut edges (as if the skin had been punched out) which tend to spread slowly, are sometimes seen in old people who bear scars of strumous sores with which they were afflicted in early life. These senile strumous ulcers occasionally assume the character of rodent ulcer or epithelial cancer.

The only conditions that are ever likely to be mistaken for scrofulodermia are syphilis and lupus. The syphilitic ulcer is met with in adults, and has not the characteristic undermined border; moreover, the process is generally much more active, and concomitant symptoms or marks usually indicate the nature of the disease. The absence of infiltration and of "apple-jelly" nodules will serve to distinguish scrofulous lesions from lupus. Both conditions may, however, co-exist, and Leloir * believes that in the same way syphilis may be mixed with scrofulodermia in the same subject.

The treatment of scrofulodermia must be conducted on ordinary surgical principles. Abscesses must be opened and their walls scraped, caseous glands must

* *Journ. des Mal. Cut.*, September, 1891.

be removed, and ulcers cleansed and stimulated. The unhealthy undermined skin at the edge of the ulcers must be trimmed away, the floor thoroughly scraped and antiseptic dressings applied. The patient's constitution must at the same time be strengthened by plenty of good food, cod-liver oil, iron and other tonics, according to the indications, and especially by sea-air, and a wholesome environment.

Tubercular ulcers.—Primary tuberculosis of the skin is very rare. It may occur on the face, on the breast, and elsewhere in the form of ulcers with an infiltrated, ragged, and undermined edge, and a slightly-indurated floor covered with yellowish tubercles, moistened with a thin and scanty secretion. The surface is often more or less thickly crusted over. They are sometimes indolent, but usually they cause considerable pain.

Occasionally the ulcers are the result of the breaking down of small tuberculous nodes. The lesion may be the precursor of tubercular disease of the lung or intestine. Köbner * recently reported a case in which a tubercular ulcer of the chin preceded the development of laryngeal phthisis. More commonly, however, such ulcers are secondary to pulmonary or intestinal tuberculosis. They are generally situated at the junction of skin and mucous membrane—about the corner of the mouth and margin of the nose in cases of lung disease, and at the anus, vulva and glans when the intestine is the seat of the primary lesion. In the former case the ulceration may spread to the mucous membrane of the tongue, cheeks, and soft palate. When the mucous membrane is the seat of these ulcers, yellow miliary tubercles can generally be seen in their vicinity. There may be one or several ulcers. They show no tendency to heal, but slowly spread by infection of the contiguous parts, sometimes attaining

* *Berlin. med. Gesellschaft*, March 15th, 1893.

a considerable size. Occasionally they run together, forming serpiginous sores. In a patient of mine, who died of phthisis at the age of forty-two, numerous small ulcers coalesced, and formed a large ulcerated surface, which nearly surrounded the left ear.

Tubercular ulcers of the skin are the result of direct inoculation with tubercular matter in patients suffering from tuberculosis; hence their relative frequency in situations where bacilli in the fæces or sputa can readily find their way into any abrasion of the surface that may exist. I have seen such ulcers begin in a patch of eczema.

The diagnosis is usually easy, owing to the presence of other signs of tuberculosis. When the ulcer is primary, its surface should be scraped, and the shreds of tissue thus obtained examined for bacilli. In Köbner's case, above referred to, the lesion was judged to be syphilitic by several practitioners, and it was only the failure of treatment based on this view and the subsequent invasion of the larynx by tubercle that revealed the nature of the disease.

Verruca necrogenica or **post-mortem wart.**—This is a condition seen on the hands of medical men, mortuary porters, butchers, cooks, and other persons who are in the habit of handling dead tissue containing living tubercle bacilli. It is characterised by the formation of obstinate red indurated wart-like growths chiefly on the knuckles and in the interdigital folds, but occasionally on other parts of the hands, and even on the arms. It usually begins as a flat papule, which by-and-by becomes pustular. The pustule dries up and forms a scab, which in time falls off, leaving a surface made irregular by prominent papillæ. These gradually become larger and harder, till they form a warty mass, which may spread slowly at the edge for an indefinite time. Hutchinson cites a case in which the growths continued to enlarge

slowly for forty years. Sometimes spontaneous involution takes place and the warts disappear, leaving a scar.

The condition appears to be identical with that described by Riehl and Paltauf * under the name of *tuberculosis verrucosa cutis*. This is a local tuberculosis of the skin, the affected tissues showing the changes characteristic of tubercle, together with the specific bacillus which is present in larger numbers than is the case in lupus. The condition known as *lupus verrucosus*, and seen chiefly on the hands and feet, is also a form of local tuberculosis of the skin, having the same characters as post-mortem wart.

The diseased tissue in all these conditions should be removed with salicylic acid, applied by means of Unna's plaster-mull or Brooke's ointment. If the lesions are spreading actively they should be thoroughly destroyed with caustics or electric cautery.

Lupus vulgaris is a form of tuberculosis of the skin presenting such marked clinical characteristics as to make it a distinct morbid entity (Plate VIII. Fig. 1). Though undoubtedly bacillary in its origin, its virulence is comparatively slight. The distinctive lesion is a new growth in the superficial or deep part of the corium. This neoplastic nodule (called by Leloir *lupoma*) is soft, brownish-red in colour, and translucent, resembling apple-jelly (Hutchinson). The lupus nodule is slow in evolution, and destroys the tissues which it invades either by ulceration (*lupus exedens*) or by atrophy (*lupus non-exedens*). The characteristic nodules are at first buried in the skin, on the surface of which, after a time, they show themselves as papules of the size of a pin's head. These are at first dull red in colour and become pale, but do not disappear on pressure. They are discrete and arranged in groups,

* *Viertelj. f. Derm. und Syph.*, 1886, Heft. i. p. 16.

sometimes in irregular circles. The papules gradually become larger and develop into nodules, the intervening skin meanwhile becoming thickened by cellular infiltration, reddened by inflammatory stasis in the vessels, and somewhat raised so as to form a distinct patch; at this stage the apple-jelly nodules project slightly above the skin. Their translucency varies according to the thickness of the epidermis covering them. New nodules spring up around the edge of the patch, which in this way spreads very slowly and may gradually invade a large area of skin. The surface of the lesions is covered with fine branny scales, but not so thickly as to hide the red ground of the patch. The lupus tissue tears very easily, in marked contrast to the tough corium. The disease usually starts from a single focus, but others may arise, and, developing separately or coalescing with neighbouring ones, may involve almost the whole body (*lupus disseminatus*). The process is, as a rule, extremely slow, and in some cases it may come almost to a standstill for an indefinite time. The patch may slowly undergo involution in the centre, a smooth firm scar being left which resembles that of a burn. This scar is often bounded by a ridge of bluish-white or reddish tubercles, which continue slowly to invade the surrounding skin. In the majority of cases, however, ulceration takes place at some time, the lupus tissue breaking down and forming a granular sore covered with greenish black crusts; dotted around the edge, which is ragged, are apple-jelly nodules in various stages of development. The ulceration may extend through the whole thickness of the skin, and in parts, like the nose, where the integument is thin, it sometimes causes necrosis of cartilage; it never, however, erodes bone, a point which conspicuously differentiates it from syphilis and cancer. If the inflammatory process

reaches any degree of intensity, enlargement of neighbouring lymphatic glands not infrequently follows; this enlargement is considered by Leloir to be due to diffusion of the tubercular virus by the lymphatics. As a general rule it may be stated that the ulceration of lupus is extensive rather than deep. Occasionally, especially after the surface of a lupus patch has been scraped, the process seems to be quickened into considerable activity, the skin becoming hot and hyperæmic, rapid development of fresh nodules taking place, and general febrile symptoms coming on. The phenomena, in fact, recall a mild reaction after the injection of tuberculin, and are probably to be explained by the absorption of bacillary products.

All phases of the lupus process may be present at one and the same time in a given case. Often while one part of a patch is in active ulceration another is cicatrising, and nodules in all stages of development are to be seen on its surface. In adults sometimes the lesions are infiltrated patches raised more at the edge than in the centre and with no translucent nodules. The different degrees of infiltration of the skin and of intensity of the inflammatory process, together with the anatomical peculiarities of the part affected, give rise to the greatest diversity in the appearance of the lesions. These variations are expressed by such words as lupus hypertrophicus, papillomatosus, serpiginosus, etc., which must be understood as indicating differences of appearance, not of process.

Lupus is seldom symmetrical in distribution. The favourite point of attack is the face, especially the nose and the neighbouring part of the cheek; it also occurs on the limbs, especially the hands and feet, on the trunk and on the buttocks. No part of the skin is safe from invasion, but, as Hutchinson has pointed out, the warmer a part is the less likely it is to be

attacked by lupus. The disease is rare on the genitals and on the scalp, though it may spread to these parts from foci in their neighbourhood. The mucous membrane of the cheeks, soft palate, pharynx, and larynx are sometimes the seat of the disease, which generally extends to these parts from the skin of the face; occasionally, however, the larynx may be attacked primarily; the tympanic membrane may be invaded through the external meatus from the ear or through the Eustachian tube from the throat. A patient of mine, a lady past middle age, who for years had been the subject of lupus of the face and other parts of the skin, developed the disease in the vagina and on the os uteri. The appearances in this case bore no resemblance to those described by Matthews Duncan and Thin in a case which they supposed to be an example of vaginal lupus, but which was in all probability of syphilitic nature.

The course of lupus is almost always extremely slow, often lasting twenty or thirty years or longer. The process is more active in childhood than in later life, and its activity, as a rule, becomes less with advancing age. The normal sluggishness of the process is diversified by occasional episodes of unwonted activity, during which the disease may make considerable progress. This not infrequently occurs under the influence of the physiological changes which take place at puberty, or as the result of an attack of some acute illness, such as measles, or scarlet fever, or of external irritation, as by cold. These periods of activity are followed by long intervals of comparative quiescence, the disease seeming almost to die out. Spontaneous cure sometimes takes place, though this is too rare an event to be taken into practical account. Even when the process does come to a standstill, this usually does not occur until it has wrought irreparable destruction on the parts attacked, leaving hideous

scars, obliterated passages, and deformed limbs, which would render life all but intolerable for most people. As a rule lupus is unattended with pain.

The secondary effects of lupus depend on the severity of the process, and also on the situation of the disease. On the face it leaves its mark in destruction of the nose with scarring of the cheeks, etc., and enlargement of glands, particularly of the parotid. Caseation and breaking down may take place in these, leading to the formation of scrofulous ulcers, and often to profuse suppuration which undermines the patient's health. Great development of fibrous tissue sometimes takes place in the cicatrices and in the limbs; this leads to contraction and crippling of joints. The skin not uncommonly becomes adherent to the underlying fasciæ and tendons, the whole being glued together into a dense, tough mass, adherent to the bone, which is itself thickened and indurating. The ulcerated parts may become the seat of warty vegetations (lupus papillomatosus). There is nothing peculiar to lupus in these secondary changes, which are the results of chronic inflammation in tissues of abnormal vulnerability, complicated by the action of pathogenic micrococci which come in to complete the destructive work of the tubercle bacillus. I have seen pseudo-elephantiasis of the lower limb due to blocking of the lymphatics as a rare result of lupus vulgaris.* A still more formidable complication is the development of epithelioma, which takes place in a certain proportion of cases.†

The disease never appears to have any effect on the general health except in rare cases. According to

* See a report of the case (which was under my care in St. Mary's Hospital), by Leslie Roberts, in the *British Journal of Dermatology*, 1888-89, p. 339.

† Dubois-Havenith, loc. cit., p. 138, says epithelioma developed in 5 of his 118 cases.

Leloir,* however, lupus of the hand may become "a starting-point of tubercular lymphangitis with production of scrofulo-tubercular gummata developed along the course of the lymphatics attacked, and finally determine under the influence of the absorption of the tubercular virus by the lymphatics of the upper limb a pulmonary tuberculosis of the corresponding side." Leloir looks upon the enlargement of the glands which has been described as occasionally taking place in the neighbourhood of lupus patches as evidence of secondary tubercular infection, and this fact he claims to have proved histologically and experimentally. Of seventeen patients under his own observation in 1885–6, ten presented unquestionable evidence of pulmonary tuberculosis.† Doutrelepont ‡ has reported a case in which a healthy woman, the subject of lupus of the face and limbs, rapidly succumbed to tubercular meningitis, as proved by post-mortem examination; the lupus lesions were the only discoverable source of infection. Thibierge has recorded the case of a boy aged fifteen, who suffered from peritoneal and pulmonary tuberculosis, the commencement of which dated from the cure of a patch of lupus on the cheek. Besnier, from long clinical observation, has come to the conclusion that secondary tubercular infection is a not infrequent result of lupus; sometimes this takes place rapidly (within two or three years), sometimes very slowly (ten, twenty, thirty years, or longer); usually, he says, the subjects of lupus who become phthisical do so in a latent and very slow manner. He gives the proportion of such secondary phthisis in his own practice as 21 per cent. Dubois-Havenith § states that among 118 patients under his own

* *Ann. de Derm. et de Syph.*, 1886.
† *Ann. de Derm. et de Syph.*, 1886, p. 332.
‡ *Monatsh. f. prakt. Derm.*, June, 1883.
§ "Du Lupus vulgaire," Bruxelles, 1890, p. 25.

care suffering from lupus eight died from pulmonary consumption. Lailler, from observation extending over many years at the St. Louis Hospital, states that pulmonary tuberculosis is a frequent cause of death among sufferers from lupus. Renouard * found that of 137 cases of lupus fifteen developed pulmonary phthisis. Haslund of Copenhagen puts the proportion of secondary pulmonary infection in the lupus patients in his own clinic at the startling figure of 60 per cent. On the other hand, Nevins Hyde of Chicago has never seen a case of such infection; and Brocq's experience has been equally negative.

This divergence of opinion is sufficient to show how difficult it is to obtain clinical evidence on this point which is conclusive one way or other. The whole subject bristles with difficulties, one most obvious source of fallacy being the fact that both lupus and pulmonary phthisis may take their origin in a common factor, namely, tubercular inheritance.

Lupus is also sometimes complicated by wasting and anæmia. Many patients, however, have all the appearance of robust health; but as a class sufferers from lupus are not long-lived.

The essential etiological factor in lupus is local tubercular infection. The tubercular bacillus, though most difficult to find, is probably always present in some stage of the lesion, and tubercular infection can be produced by inoculation of cultures made from these lesions. Of the exact mode in which the infection is ordinarily conveyed little is yet definitely known. It is probable that the bacillus gains access by an accidental abrasion of the epidermis, or it may conceivably be carried to the skin by the blood or lymph after having found its way inside the body through one of the natural passages. There are, however, a number of secondary causes which play a

* Quoted by Dubois-Havenith, loc. cit.

more or less important part in the production of the disease. Youth is a predisposing influence. The disease usually begins within the first ten years of life, occasionally at puberty, seldom later. In exceptional instances it develops in middle life or even in old age. Females show considerably greater liability than males. The disease, while sparing no class, numbers more victims among the poor than among the well-to-do. Cold is a predisposing factor of some importance, as evidenced by the greater frequency of the disease on exposed than covered parts. Even if cold cannot be shown to have any direct influence in the production of the disease, undoubtedly it has a pernicious effect on the process when once established. Pre-existing lesions or scars form the starting-points of the disease in a certain proportion of cases. Slight injuries, burns, sores, blisters, infantile eczema, etc., are, according to Besnier, "very commonly" the immediate causes of lupus. It is obvious that under such conditions the tubercle bacillus may more readily gain access to the tissues than when the integument is intact. The disease has been known to begin in the vesicles of herpes (Crocker, Kaposi). The state of the general health has no direct influence on the causation of lupus, and the disease is probably hereditary only in so far as a tubercular inheritance may create a predisposition thereto. It has been suggested by Baumgarten, however, that the bacillus itself is directly inherited, and in that case the origin of lupus might be explained by the settlement of the micro-organism in the skin of the fœtus. Cases in which lupus has been directly inoculated have been reported by Jadassohn* and others. In one case a woman was tattooed on the fore-arm by a man suffering from pulmonary tuberculosis from which he afterwards died; the operator used his saliva to dilute the ink,

* Dubois-Havenith, loc. cit.

and typical lupus nodulus appeared on the tattooed parts. Besnier* showed a case of lupus in a lad aged 18 in whom the development of the disease had taken place in a vaccination scar, where it had developed within a few months of the operation. Dubois-Havenith† mentions a case which suggests the possibility of contagion in certain circumstances: two sisters, one of whom had for eight years had a large patch of lupus on the left cheek, shared the same bed. For the last two years the other sister has had a lupus patch on the lobe of the right ear—that is to say, the ear which is sometimes in contact with her sister's cheek as they lie in bed. As a rule, however, it may be stated that lupus is not contagious.

In a well-marked case of lupus the diagnosis is easy. The presence of apple-jelly nodules at once indicates the nature of the process. A typical lupus patch with its infiltrated raised surface, defined edge studded with apple-jelly nodules, the whole covered with a moderately thick layer of scales, can hardly be mistaken for anything else. The disease, however, may sometimes have to be distinguished from syphilis, scrofulodermia, lupus erythematosus, rodent ulcer, and cancer. The following are the points differentiating it from syphilis: It begins in childhood, whereas syphilis begins in adult life; in its rate of progress it is to syphilis as the hour hand to the minute hand of a clock (Payne); the ulcers are ragged instead of sharp-edged; the ulcerative process never involves bones; lastly, if the lesions are syphilitic, other traces of the disease are sure to be discoverable, and if any doubt should remain, a course of antisyphilitic treatment will clear it up.

In scrofulodermia, also, other evidences of the

* *Ann. de Derm. et de Syph.*, 1889, p. 576.
† Loc. cit., p. 38.

disease are to be seen on the neck or elsewhere, in the form of enlarged glands or scars. As lupus and scrofulodermia not infrequently coexist, and as the treatment of both conditions is practically the same, the recognition of what is lupus and what is scrofula is a matter more of academic than of practical importance.

The points of distinction between lupus erythematosus and lupus proper may be summed up as follows : While lupus vulgaris appears before puberty, lupus erythematosus generally shows itself after that period ; the soft apple-jelly nodules characteristic of lupus vulgaris are altogether absent in lupus erythematosus ; while lupus vulgaris usually ulcerates at some time in its course, lupus erythematosus never does so ; while lupus vulgaris erodes cartilage, lupus erythematosus never extends to the deeper parts ; finally, lupus vulgaris is not symmetrical in its distribution, like lupus erythematosus. There are cases, however, in which the characteristic lesions of lupus vulgaris are masked by œdematous swelling, and in such circumstances it may be difficult to distinguish it from that condition ; even then, however, if the scaly covering of the patch be removed the prickle-like plugs of dry sebaceous matter passing into the orifices of the ducts from the lower surfaces of the crusts will identify the condition as lupus erythematosus. The condition in which lupus vulgaris assumes the aspect of lupus erythematosus has already been described. By stretching the skin at the spreading edge of the disease, however, small amber-coloured nodules, having the characters of those distinctive of ordinary lupus, can generally be seen. Although such patches never present any trace of ulceration, a tendency to cicatrisation is visible at the border ; this is never observed in true lupus erythematosus.

In its earliest stage lupus may sometimes resemble eczema seborrhoicum, but the appearance of the apple-jelly nodules, the slow course of the process, and the tendency to the formation of scars, will serve to distinguish it from that affection.

Rodent ulcer is essentially a disease of later life. The ulcer is, as a rule, single ; it is much slower in its course than lupus, and it reaches deeply into the tissues. It differs from a lupus ulcer in having an indurated border and a smooth floor.

Epithelioma is also a disease of later life. The hard everted edge, the foul base often roughened with warty formations or sprouting with cauliflower-like excrescences, the implication of neighbouring lymphatic glands, and the secondary deposits in other parts, will serve to identify the disease.

In certain rare cases, where the lesions are numerous and scattered about the body, and where they are exceptionally scaly, lupus may more or less closely simulate psoriasis ; but on careful examination there will almost always be found one or two patches at least presenting the typical characters of lupus.

The prognosis is favourable as regards life, as lupus seldom, if ever, directly causes death. The possibility of secondary tubercular infection, slight as on the whole it may be, must be borne in mind. As far as recovery is concerned, the prospects of the patient depend on the severity and extent of the process, and in an almost equal degree on the treatment which is applied. In the most favourable circumstances lupus is an obstinate affection, with a pronounced tendency to recurrence, even after the most thorough removal. If the disease be limited in extent, however, and the patient otherwise healthy, persevering treatment will, in a certain proportion of cases, bring about a cure. As already said, the process is most active in childhood, and the older the patient the

more hopeful is the prospect of treatment proving successful.

Pathologically, lupus vulgaris is a local tuberculosis of the skin. The essential lesion is a new growth resulting from the irritation caused by the presence of the tubercle bacillus. The process begins in the deeper layers of the cutis; the nodules displace the bundles of fibrous tissue, and as they increase in size they grow upwards through the skin, destroying its component elements by pressure, so breaking through the papillary layer and emerging on the surface, where they are covered only by epithelium, more or less translucent, as already said, according to its thickness.

On microscopic examination the nodules are found to be composed of giant cells, surrounded by a layer of epithelioid cells, with an outer envelope of ordinary lymphoid or small round cells. The lupus nodule is practically identical in structure with the tubercular nodule, and this fact led Friedländer and Koster to look upon lupus as a local tuberculosis before this was proved bacteriologically by Koch. The tubercle bacilli are present in very small numbers; even in the growing edge there is often only one in a giant cell. It is not surprising, therefore, that frequently they cannot be discovered on the most careful examination. When a lupus nodule has reached its highest development, retrogression sets in. This may take one of two directions—namely, either fatty degeneration, followed by the formation of a fibrous cicatrix, or softening and ulceration. Lupus, however extensive or disseminated it may be, shows comparatively little tendency to become generalised.

In the treatment of lupus the object to be aimed at is the complete removal or destruction of the diseased tissue. For this purpose internal treatment is useless, although it may sometimes be of service

indirectly by remedying any constitutional condition which favours the proliferation of pathogenic micro-organisms. In deciding upon the particular method of local treatment to be pursued, the practitioner must not be guided entirely by the destructive energy of a particular agent or procedure; other points, such as the size and situation of the lesions, the tolerance of pain in a given patient, the length of time which the treatment will probably take, and the nature of the scar likely to be left, have to be taken into account, according to the circumstances of the case. Again, the idiosyncrasy of the disease itself must be reckoned with; while in some cases the roughest handling does no harm, in others the disease is of so angry a nature that even the mildest local treatment is resented. In dealing with lupus, as with other affections of the skin, the practitioner must feel his way, and while ruthless in his war against the disease, must never forget that there is a patient behind it.

If lupus is superficial an attempt should be made to bring about exfoliation of the diseased tissues. The best application for this purpose is salicylic acid, which may be used in the form of Unna's salicylic acid and creasote plaster-mull, the latter drug being introduced to neutralise the pain caused by the former. The parts should first be softened with an emollient ointment and then well washed with soft soap, so as to remove the scales. Care must be taken not to continue the use of salicylic acid too long, and to confine its use as nearly as possible to the affected surface, so as not to injure the surrounding skin. Another way of employing salicylic acid is to add it to glycerine in sufficient quantity to form a cream, with a little creasote, and apply it on lint. For either of these applications may be substituted Brooke's ointment, which is composed as follows:

℞ Zinci oxidi ... ... ʒ¼
Amyl. pulv. ... ... ʒ¼
Vaselin. alb. ... ... ʒss
Hydrarg. oleatis (5 per cent.) ... ... ʒj
Acid. salicyl. ... ... grs. xx
Ichthyol ... ... ♏xx
Ol. lavandulæ ... ... q.s.
Ft. ung.*

This ointment should be vigorously rubbed in night and morning, the part being then thickly dredged over with potato-starch powder. I have seen excellent results follow the use of this ointment. If the skin should break it should be dressed with some simple antiseptic application such as boracic acid ointment.

Parasiticide applications are sometimes very useful. Mercurial plasters may be applied, or an ointment of one or two grains of bichloride of mercury to the ounce of vaseline may be used. White of Harvard says that by this method a cure is effected in a few months. Doutrelepont † applies a solution of corrosive sublimate of 1 in 1,000 under guttapercha tissue, and says the method has been very successful in his hands. Dubois-Havenith,‡ on the other hand, who has frequently tried it, has had "variable, but always incomplete, results." Bichloride of mercury has also been injected into lupus patches by Doutrelepont, Tansini, and others, with a beneficial effect. Harrison § of Clifton claims to have cured lupus by impregnating the affected tissues with sulphurous acid in the nascent state. An aqueous solution of hyposulphite of soda, grs. 40 to ʒj (No. 1 lotion, or night application), is applied to the affected parts by means of lint covered with

* "A Preliminary Treatment of Lupus Vulgaris," *Brit. Journ. Derm.*, May, 1890, p. 145.
† *Monatsh. f. prakt. Derm.*, 1884, No. 1.
‡ Loc. cit., p. 107.
§ *Brit. Med. Journ.*, August 6th, 1892.

guttapercha tissue or oil-skin, the object being to saturate the tissues thoroughly with this soda salt. The next morning a lotion, consisting of pure hydrochloric acid (B.P.) ɱv in water ʒj (No. 2, or day application), is applied. In this way a quantity of nascent sulphur and sulphurous acid is said to be formed deep in the diseased structures. The lotions are changed night and day, and the treatment must be continued for weeks. The result, according to the author, is that the lupoid tissue is destroyed, scabs and scales quickly disappear, and an ulcerated surface—which soon shows a tendency to heal—is produced. It is probable, however, that by this method only the organisms which cause suppuration and ulceration are destroyed, the lupus process itself being untouched.

Chemical caustics are often very useful if applied in a thorough manner. Here the question of anæsthetics naturally presents itself. The injection of cocaine round the patch of lupus to be operated on will often dull the sense of pain sufficiently for the purpose in view. The advisability of a general anæsthetic, and the choice of an agent if such be thought necessary, must depend on the special circumstances of the case. Among chemical caustics nitrate of silver holds the first place, and is still the favourite remedy for lupus with some very experienced dermatologists. It acts only on the diseased tissue, and may thus be very freely applied. The patch should be deeply grooved with the solid stick in various directions till the whole is destroyed. The procedure is extremely painful both at the time of the operation and for some hours afterwards. It has the advantage that it causes no bleeding, and the parts require no special attention between the visits. Equally good results, however, can be obtained by milder measures. Acid nitrate of mercury, applied on the end of a probe tipped with cotton-wool, is a more efficient caustic

than nitrate of silver, but it is also more painful and gives rise to unsightly scars. Lactic acid is useful for the treatment of ulcerated surfaces; it causes comparatively little pain, but as it acts impartially on sound and diseased tissue the neighbouring parts must be protected when it is used. It is most applicable for lupus of mucous membranes. Arsenical paste destroys lupus tissue, but the application causes severe pain, and arsenical poisoning is not impossible unless great care be taken. The following is Hebra's formula:—

℞ Arsenious acid	...	...	...	grs. 10
Artificial cinnabar	...	...	...	ʒss
Rose ointment	...	...	...	ʒss

This is spread on linen and applied evenly on strips, over which a piece of lint is firmly bandaged. The caustic should be left *in situ* for twenty-four hours, when the parts are carefully cleansed and the paste re-applied. Chloride of zinc is extremely useful as a caustic agent, especially as a supplement to surgical measures. It may be applied in a solution of equal parts of chloride of zinc and alcohol, or in the form of a paste composed as follows:—

℞ Chloride of zinc	...	...	...	ʒxvj
Powdered opium	...	...	...	ʒjss
Hydrochloric acid	...	...	...	ʒvj
Boiling water to	...	...	...	ʒxx

Dissolve. To one ounce of the solution add two drachms of wheaten flour (Middlesex Hosp. Ph.).

Pyrogallic acid is extremely useful in some cases. It has a selective action on the tissues, and as a rule causes comparatively little pain; to this rule, however, there are exceptions, a fact which it will be well for the practitioner to bear in mind. It may be applied in the form of a plaster-mull or as an ointment (10 per cent.), or in a saturated ethereal solution.

The latter form is much used by Besnier. He brushes the solution over the affected surface, which is then covered with traumaticin; this is repeated till all the lupus nodules have been destroyed. Pyrogallic acid is particularly useful in the after-treatment of patches that have been subjected to erasion, scarification, or cauterisation. It may be combined with salicylic acid in 10 per cent. in collodion, or in the form of ointment.

The mechanical treatment of lupus includes excision; erasion; scarification; and cauterisation (*a*) simple and (*b*) electrical.

Excision gives excellent results if the whole of the disease can be removed without leaving too large a breach of surface. The operation is chiefly applicable in the case of limited patches situated on the limbs or trunk. Healing of the wound is greatly aided by transplantation of skin after the manner of Thiersch. In this way comparatively large gaps in the tegumentary covering have been filled up. The most thorough removal of the lupus tissue, however, affords no absolute guarantee against recurrence. Excision is, for obvious reasons, seldom, if ever, applicable in lupus of the face.

Erasion or scraping is perhaps the most useful procedure. The ulcerated surface is scraped out with Volkmann's sharp spoon, just like a tubercular joint. The instruments used vary in size and shape according to the different parts on which they have to be employed. The scraping must be done with some amount of force; and it will be found that the underlying healthy tissue is much tougher than the diseased structures, which break down readily under the curette. A practised operator knows when he has got down to healthy tissue by the resistance which he feels. Bleeding may be checked by pressure with pieces of cotton-wool. However

thoroughly the lupus tissue may seem to have been scraped away, fresh nodules are almost certain to make their appearance. They should be at once scraped away or broken up. For this purpose a double-threaded screw instrument devised by me will be found useful. Some powerful parasiticide substance, such as strong carbolic acid or bichloride of mercury (1 in 2,000) should be used to wash the raw surface, and the wound should be dressed antiseptically. Erasion is a valuable method of treatment, but as a rule it requires to be supplemented by chemical agents such as pyrogallic acid or chloride of zinc, which complete the work of destruction. The following method, which was communicated to me by Sir Joseph Lister, answers well. After thoroughly scraping out the diseased tissue and the bleeding has ceased, the holes are filled up with fuming nitric acid, which, after being allowed to saturate the tissues for a few moments, is neutralised by a solution of bicarbonate of soda. When the effervescence has entirely ceased, the part is dressed in the usual way. There is hardly any subsequent pain, and the results are excellent. Veiel supplemented erasion by multiple puncture, stabbing the scraped surface in hundreds of points with a narrow-bladed knife. These stabs were as close together as possible. The process was repeated three, five, and even eight times within a fortnight or a month.

Scarification consists in ploughing up the diseased patch in close-set parallel furrows, so that all the nodules are broken up. A lupus patch may be scarified in different directions—the lines crossing each other so that no point shall escape the knife. The secret of successful scarification is to use very sharp instruments, and to multiply the incisions so as to cover the whole surface in such a way that the diseased tissue shall be, as it were, thoroughly minced up and the nutrient vessels destroyed or occluded

The scarification should be carried below the level of the new formation without going beyond the limit of the true skin. The treatment should always be begun at the edge. The bleeding can easily be checked by pressure with cotton-wool, and the pain of the operation can be to a large extent mitigated by the previous use of cocaine. Scarification leaves a better scar than scraping, and is therefore more suitable when the face is the seat of the disease. The results, on the whole, are satisfactory, though recurrence takes place in about as large a proportion of cases as after other methods of treatment. The objections to it are that it necessarily requires a long time, during which the sufferer's patience or health may give way; it is also attended with a considerable amount of pain, and the loss of blood which it causes may, in the aggregate, be of serious consequence in a weakly patient. A still graver objection against it is urged by Besnier, who states that secondary tubercular infection is very likely to be caused during the process of scarification, particles of the diseased tissue being carried away in the blood and inoculated in some other part of the surface. Though I have operated on a large number of cases in this way, I have never seen such a result follow.

Cauterisation with Paquelin's cautery is a severe method which should hardly ever be used except when it may be of importance to destroy the disease very rapidly. It destroys lupus in a minimum of time, but at the expense of a maximum of cicatrix, with all the subsequent possibilities of deformity and disablement. The method should be reserved for the destruction of small recurrent nodules. The galvano-cautery is more generally applicable, and its effect is much more under the operator's control. It may be used either by way of puncture, the affected tissues being, as it were, tattooed with the incandescent point

with which the apple-jelly nodules are individually attacked. Galvano-cauterisation can be used as a primary method, the affected surface being, as in the case of scarification, first attacked at the edge. It is also very useful as a supplementary method after erasion or scarification for the destruction of recurrent nodules. Besnier thinks that the use of the galvano-cautery is much less likely to be followed by auto-inoculation than procedures that are attended with bleeding.

An important practical point that must be borne in mind in connection with all the severer methods of treatment, is to know when to hold one's hand. When inflammation is severe, and the affected tissues are proportionately irritable, soothing applications must be used for a time. For this purpose calamine or lead lotion will be found most useful. Radical treatment should not be proceeded with till the inflammatory condition has been subdued.

With regard to the choice of a method adapted to the situation of the disease, it may be stated in general terms that on the face scarification followed, if necessary, by galvano-cautery, and on the trunk and limbs erasion followed in the same way by galvano-cautery, are the most suitable procedures. In either case the initial advantage obtained by mechanical treatment will need to be followed up by chemical caustics and parasiticide agents. There is no general formula for the treatment of lupus. Each case must be treated in accordance with its requirements, and each of the methods described has its own special advantages when used in the proper circumstances. As already said, the practitioner will find it necessary to study the manner in which the disease responds to different modes of treatment, always keeping in mind the object to be aimed at—namely, the destruction of the new growth. In the vast majority of cases it will be found that

different methods will have to be employed at different stages, while occasionally it will be advantageous to suspend all treatment for a time till the disease has, as it were, lost the tolerance which prolonged medication has produced. The application of chemical substances will cure only milder forms of lupus where the disease is superficial. On the other hand, there is no mechanical method, however severe, that will infallibly prevent recurrence. The best results will be obtained by a judicious combination of mechanical with chemical treatment. The patient should be kept for a considerable time under strict observation, so that any fresh outbreak of the disease may be treated at once.

Constitutional treatment must be carried out on general principles. In a certain proportion of cases the patients present no evidence of ill-health, and therefore require no internal medication. There is no internal remedy that has any specific effect on lupus. Arsenic, the administration of which is a kind of ceremonial observance which some practitioners consider indispensable in all cases of skin disease, is useless. Besnier gives iodoform and Morel-Lavallée has tried subcutaneous injections of the same substance with some success; but the results have not been sufficiently convincing to bring the method into general favour. The same may be said as regards iodide of potassium, advocated by Duhring. If the patient is of scrofulous constitution, the treatment appropriate for that condition is indicated. Cod-liver oil in such cases appears to have a decidedly favourable effect. Good food, sea air, and attention to hygiene are powerful adjuvants in the treatment of scrofulous individuals. Other unfavourable conditions—such as anæmia, chlorosis, etc.—must be dealt with by appropriate measures. Tuberculin, although certainly not the specific which it was

at first believed to be, has still, in my opinion, a distinct place in the therapeutics of lupus. The injections sometimes cause an immediate reaction of such violence that it quickens the activity of the process, and in the most favourable circumstances the temporary improvement that follows them speedily disappears.* Notwithstanding this, tuberculin seems to modify the lupus process in such a way that the disease becomes more amenable than before to local treatment. My own experience has been decidedly encouraging, all the more that my earlier expectations were grievously disappointed. Of twelve cases in which I gave the tuberculin treatment a full trial there was not one that did not within a comparatively short time relapse to a condition as bad as before the treatment. Further observation, however, has convinced me that the tuberculin, while failing by itself to effect a cure, prevents recurrence when the disease has been destroyed by other means. The patients just referred to have, since the failure of the tuberculin, been treated by the ordinary chemical and mechanical methods, and may now be looked upon as practically cured. As treatment of the same kind had been tried in all these cases for years previously without permanent success, the apparent abolition of the tendency to recurrence must be placed to the credit of the tuberculin. I consider, therefore, that a course of tuberculin injections should be a preliminary to the treatment of lupus by any of the methods that have been described. It is, however, absolutely contra-indicated if there be any reason to suspect the existence of visceral tuberculosis.

At the International Congress of Dermatology, held at Vienna in 1892, Hans von Hebra showed some cases of lupus which he had treated by subcutaneous

* It is worth mentioning that lupus sometimes undergoes considerable temporary improvement under the influence of an attack of erysipelas.

injections of thiosinamin. The injections caused local reaction without any constitutional disturbance, and the effects seemed to show that thiosinamin has the power of favourably influencing lupus tissue. In particular, it renders cicatricial tissue soft and pliable, and thus removes distortions and contractions of joints. Tommasoli * has tried injections of dog's serum in lupus, but with no very brilliant results.

* *Riforma Medica*, May 20th, 1893.

CHAPTER XVIII.

GENERAL INOCULABLE DISEASES (*continued*).

Syphilis.

Syphilis is a disease caused by the introduction into the system of a specific poison. The virus is probably produced by a micro-organism, but this has not yet been definitively identified. The poison is inoculated, that is, conveyed by direct contact; an abrasion of surface on the part of the recipient facilitates the introduction of the virus, but is by no means a necessary condition of infection. The disease is, in the vast majority of cases, transmitted during coitus, but infection may take place on any part of the body in which the poison is implanted. It may be acquired; or it may be inherited—either from a diseased father (sperm inheritance) or from a diseased mother (germ inheritance). Germ inheritance may take place whether the mother be the subject of syphilis at the time of conception, or whether she contract the disease at any period during gestation; thus, as pointed out by Hutchinson, the child has a much greater chance of being infected by the mother than by the father. Both parents may, of course, be syphilitic, and the offspring will, in these circumstances, also have a double chance of being infected, but there is no evidence to show that the resultant disease is of a severer type than when the poison is drawn from only one source. What is inherited in syphilis is not merely, as in the case of tuberculosis, a predisposition to a particular disease, but the actual virus itself, modified, it may be, by its passage through the parents.

In whatever way the poison is transmitted, the disease is always one and the same; but the severity of its manifestations may be very greatly modified either by the constitutional peculiarity of the patient, or by treatment, or by a combination of both these factors.

Syphilis is really a specific exanthematous fever, "diluted by time," to use the happy expression of Moxon. It presents a close analogy to small-pox; for instance, if we suppose the eruptive stage to be drawn out into months instead of days, and the sequelæ to come on after years instead of weeks, the following stages can be recognised in a typical case of acquired syphilis: (1) *a latent period*, which intervenes between the date of contagion and the earliest sign of local infection; (2) *an incubation period*, which includes the formation and development of the chancre and enlargement of the nearest lymphatic glands; (3) a period of *invasion*, including the specific fever with its associated phenomena up to the appearance of the general eruption; (4) an *eruptive period* with early and late development of characteristic lesions on the skin and mucous membranes, and in the glands; (5) a period of *quiescence;* (6) a period of *sequelæ*, consisting of late local so-called "tertiary" lesions. For practical purposes Ricord's division of syphilis into three stages—primary, secondary, and tertiary—is convenient, and corresponds with fair accuracy to natural divisions in the clinical history of the disease. It is necessary, however, that a clear conception should be formed of the exact state of things indicated by these terms. In the primary stage, during the development and continuance of the initial lesion, syphilis is a local disease, and the virus can be conveyed only by direct contagion from the local sore. In the secondary stage—representing the eruptive period of a specific fever—syphilis becomes a general disease,

and manifests constitutional symptoms due to the diffusion and multiplication of the poisonous products in the blood; in this stage the blood and all the fluid tissues contain the specific virus, and the infection can be transmitted by the secretion from any of the lesions, and possibly by the saliva and other normal fluids, though Hutchinson considers this improbable. In the tertiary stage syphilis once more becomes a local disease; it is then a disease not of the blood, but of the tissues, and the lesions have only local contagious properties.

It must be understood that in many cases it is not only the specific virus of syphilis that is inoculated, since the poison seldom exists in an absolutely pure state. The sores become infected by various micro-organisms which cause inflammation and suppuration, and these parasites, together with the products of their activity, are often conveyed with the syphilitic virus. These extraneous infective matters produce lesions of a peculiar kind, which may complicate and, in some cases, overshadow the specific effect of the syphilitic poison.

Primary lesion.—The primary lesion generally appears from three to four weeks after exposure to contagion—hardly ever less than two, or more than six, weeks. The appearance of the lesion varies according to its situation. When situated in a typical position, as on the glans penis or labium, the first perceptible change is a minute red spot. In a week or ten days this grows into a nodule with definite margin. A marked characteristic of this nodule is its hardness. The induration is seldom very distinct before five weeks have elapsed from the date of inoculation. There is usually more or less itching, though this may be totally absent. Ulceration generally takes place, and the resulting sore presents a minutely granular floor,

secreting a small quantity of thin liquid, and bounded by a definite, but not raised, border. The base of the ulcer is distinctly indurated. Sometimes the lesion is limited to a desquamating papule which does not ulcerate, but may undergo involution so rapidly that the patient, unless he has been on the look-out for it, may be unconscious of its presence. On the other hand, it may persist for months. Simultaneously with the induration of the chancre, the nearest set of lymphatic glands becomes enlarged and hard. The primary sore has a natural tendency to heal, the induration gradually disappearing and a scar being left. When unmodified by treatment the primary lesion seldom lasts less than two months. There is usually only one primary sore, but occasionally there may be several, the number depending on the number of points at which the virus has been inoculated at the time of contagion. I have seen five sores, having the characters of the hard chancre, on a patient's arm at the same time.

Chancres, when acquired during sexual intercourse, are generally situated on the frenum and inner surfaces of the prepuce. The glans, the margin of the prepuce (where the chancre is often multiple), the orifice of the meatus, the mucous membrane of the urethra within the meatus, and the skin of the penis, are also common situations. In the female the inner surfaces of the labia majora and the nymphæ are the most frequent sites of hard sores; they are also met with on the clitoris and on the os uteri. The vagina seems to be protected from inoculation by the thickness of its epithelium. Chancres are more frequently multiple in women than in men, probably owing to the greater opportunities of auto-inoculation. Chancres also occur on the fingers (as in midwives and surgeons), on the nipples

(in wet nurses), on the lips, cheeks, or tongue, from smoking infected pipes, drinking out of infected glasses, etc.; they may also develop on vaccination scars or on any parts of the body where the poison may be inoculated by a bite or other injury. Dentists' instruments have occasionally been the vehicle of the syphilitic poison.* The disease has been communicated by tattooing. A hard sore has been known to develop on the penis of an infant, after ritual circumcision, when the disgusting method —now happily abandoned in Great Britain at least —of stopping bleeding by suction was adopted. Hard sores may also be met with in extraordinary situations as the result of unnatural vice, but it is probable that the great majority of extragenital chancres are contracted accidentally.

Wide differences are observed in the appearance of chancres, these being chiefly due to the anatomical peculiarities of the part on which it is situated. Thus, a chancre on the glans is usually definitely circumscribed as well as indurated, whilst a chancre of the cheek presents a diffuse tense œdema, in which the edge of the sore is lost. The chancre that affects the bed of the nail is scarcely ever indurated and often suppurates very freely (Hutchinson). On other parts, and especially on the face, chancres sometimes attain an enormous size, and may lose the ordinary characters of infecting syphilitic sores and simulate malignant disease. Again, chancres are greatly influenced by treatment, the administration of mercury lessening induration to a remarkable extent and shortening the course of the lesion. Apart, however, from differences in appearance determined by anatomical conditions and modifications caused by treatment, great variations are observed in chancres. In the incubation period there may be

* Buckley; New York Odontological Society, 1890.

nothing beyond a small dusky spot which lasts for a few days and then disappears, leaving a brown stain. On the other hand, there may be an obstinate ulcer with marked induration, lasting a year or more and leaving a scar. The induration may recur from time to time, even as long as seven or eight years after its complete disappearance (Hutchinson).

The primary sore has a protective influence like that of vaccination, but, like the latter also, the immunity which it confers is neither absolute nor permanent in all cases. Instances of reinfection are not very rare, but the manifestations of the disease are usually much milder in the second than in the first attack.

As already said, there is frequently a double inoculation, infective matter of inflammatory origin being introduced at the same time as the specific virus of syphilis. In this way "soft" sores are produced. These sores are hardly ever seen except on the genitals. They are usually multiple, and can reproduce themselves in the patient by secondary inoculation. The typical soft sore has a sharply-cut, punched-out margin, and a grey, unhealthy-looking base with a considerable zone of inflamed skin around it. The lymphatic glands in the neighbourhood become enlarged, and the several glands of a group become matted together by inflammatory exudation. It is probable that soft sores are produced by a specific micro-organism, but as to this nothing definite can be said at present.

It must be clearly understood that although the infective sore is called, in accordance with its most obvious physical character, "hard," and the non-infecting sore by way of distinction "soft," neither of these characters is sufficiently constant to be made an absolute criterion of the nature of a given sore. An infecting sore is not always hard; on the lip, for

example, there is seldom any marked induration. On the other hand, a sore, at first soft, may after a few weeks become indurated and be followed in due course by the development of constitutional syphilis.

Herpes, which, as already said, may occur on the genitals in either sex as the result of simple irritation, sometimes follows both infecting and non-infecting sores. A previously-existing herpes may conceal a chancre, a fact which should always be borne in mind when the herpes occurs in newly-married persons.

The venereal sore may become the seat of phagedæna, probably from infection with some new virus. The ulcerative process assumes a more violent character, and spreads rapidly both in area and in depth; the edge of the ulcer becomes irregular, and sloughing frequently takes place. The ulcer is very painful, and serious hæmorrhage is sometimes produced from erosion of the arterioles. Great destruction may be wrought by this process, the penis being sometimes entirely eaten away. The contagion, which probably always originates from venereal sores (Hutchinson), may spread through a hospital, attacking all operation and other wounds.

Secondary lesions.—If a case of syphilitic infection be left to itself, symptoms of constitutional disturbance may be expected to show themselves in from seven to nine weeks after inoculation. Their onset may be prevented or indefinitely delayed by proper treatment, but sometimes they will show themselves, even after a prolonged administration of mercury, as soon as the drug is discontinued. The onset of the secondary or eruptive stage is, in the majority of cases, marked by little or no constitutional disturbance. In some cases, however, it is ushered in by distinct febrile phenomena. The patient feels unwell, languid, and weak, and complains

of loss of appetite, with headache and pains in the joints, muscles, and bones, especially those lying just under the skin, the tibiæ, ulnæ, and clavicles. All these symptoms are usually aggravated at night. The temperature curve often shows a marked evening rise. Occasionally the fever runs extraordinarily high, as in a case reported by Burney Yeo, in which it ranged from 100° F. to 104° F. for several weeks. The pyrexia may be out of all proportion to the skin eruption; but generally, when the eruption is unusually severe, the fever runs higher than in ordinary cases (Hutchinson). In rare cases the constitutional disturbance is so great, and lasts so long, that the nature of the disease may not be suspected for some time, the symptoms being attributed to some obscure form of blood-poisoning. The eruption is erythematous in character, and is known as syphilitic roseola. It shows itself as a macular mottling, resembling measles, but rather more dusky, scattered more or less thickly over the chest and belly. The rash varies in intensity, according to the temperature and the amount of clothing worn. It is very evanescent, often disappearing in a few hours, and coming out again as suddenly. Coincidently with the roseola, slight superficial ulcers form on the tonsils; these are often so painless and so transient that the patient may be unaware of their existence. Even if there be no definite ulceration of the throat, the mucous membrane is congested, being, in fact, the seat of an eruption similar to the roseola on the skin. The rash generally begins to fade within a fortnight of its appearance, giving place to a papular eruption which comes out on the trunk, limbs, and neck (Plate VI. Fig. 2). The papules are small, tense, and firm, with smooth or slightly scaly tops. They increase in size by peripheral extension, the older central parts undergoing atrophy or necrosis. Sometimes, though very rarely, vesicles are

formed; or suppuration may supervene and give rise to pustules.

In the early stage the pustules dry up and form scabs, underneath which no ulceration takes place, and consequently no scar is left. In the later stages the breaking down of the papule is followed by an ulcerative process with rapid drying of the secretion into crusts; as the ulcer spreads at the edge, each successive layer of crust is necessarily larger than the one immediately above it, and a pyramidal structure somewhat resembling a limpet-shell is thus formed, to which, from its shell-like appearance, the term "rupia" is applied (Plate V. Fig. 1). Sometimes the crusting process begins in the drying up of a bulla. Rupial lesions are hardly ever met with till from six months to a year from the appearance of the primary sore, and then usually only in persons who have neglected treatment or whose health has broken down. Rupia always leaves scars, and is generally symmetrical.

All the early secondary eruptions are modifications of one process, angioneurosis, the mechanism of which has been described in a former chapter. Hyperæmia of the papillæ in particular spots gives rise to red patches which may be evanescent (roseola), or may persist as isolated blotches for a longer or shorter time (macular syphilides). These maculæ, which vary in colour from a delicate rose to a pale violet or dusky-bluish or even brownish red, have a smooth surface, and being partly infiltrations, do not disappear completely on pressure. They are seen chiefly on the chest and abdomen, often on the flexor aspects of the extremities, seldom on the face. They cause no subjective symptoms. Scattered among the maculæ or on them may often be seen papules (maculo-papular syphilides). These syphilides last a variable time, and leave stains the depth of which is proportionate to the length of time the lesions

have persisted. A remarkable property in these and other forms of secondary eruption is that they are made more conspicuous by the action of cold on the surface of the skin. In association with the macular syphilides, alopecia, either general or in patches, is often observed. Alopecia areata is sometimes, however, the earliest sign of secondary syphilis.

Hyperæmia of the papillæ is often followed by infiltration of inflammatory products, and in this way a papule is produced (papular syphilide). Papules, as already said, often arise in connection with the maculæ ; they may also develop independently. Two varieties of these lesions may be distinguished, the small and the large. The former vary in size from a pin's head to a linseed, are at first red, afterwards brownish in colour, have a shining surface, and feel like small shot. They are thickest over the abdomen, chest, shoulders, and upper limbs, more sparsely scattered over the back and the legs. Involution takes place slowly, and the stain left behind is long in dying away, and is sometimes followed by a shallow depression which may last for years. The small papule is not very common as an early lesion, and is generally looked upon as a sign that the disease is of a severe type. The large papule may develop directly out of the macular syphilide, or may be produced by the gradual enlargement of the small variety. It may be as large as a pea, but is generally flattened on the surface. It affects the whole body pretty impartially, sometimes forming a kind of circlet on the brow round the margin of the hair (*corona veneris*). The evolution of the papule is irregular. Some persist as such and increase in size by peripheral extension, undergoing involution meanwhile in the centre. As they shrink they become scaly on the surface ; if the formation of scales is at all active the lesions often come to bear a tolerably close resemblance to patches of

psoriasis. Desquamation frequently persists after complete subsidence of the papule. In other cases, as already said, the papules become transformed into vesicles and pustules. With regard to the vesicular forms, it must be noted that they have no affinity with the eczematous process; the latter, as pointed out in a previous chapter, is catarrhal, but in the production of syphilitic lesions of the skin the element of catarrh has no place.

A further stage in the development of the papule is reached by the occurrence of overgrowth of the papillæ giving rise to warty conditions, the favourite seats of which are the tongue and the genitals. If the lesion is situated in a moist part, the hypertrophied papillæ are covered with sodden white epithelium (moist papule, or mucous papule or patch). A more marked degree of hypertrophy transforms the moist papule into a mucous tubercle or condyloma. The difference between warts and condylomata is that while in the former the overgrown papillæ are free, in the latter they are welded into a coherent mass by swelling of the intervening tissue.

At what may be called the height of the eruptive stage of syphilis the lesions present almost every conceivable variety of type. Not only the simple elementary lesions that have been described may be seen mingled together in every phase of development, but mixed forms, of a complexity that baffles description, may be seen. In this way almost every known skin affection may be more or less closely simulated. Thus one secondary eruption will simulate a copaiba rash, or varicella, or even variola; another, lichen; another, impetigo or acne; another, alopecia or leucodermia. Purpura is not infrequently among the manifestations of constitutional syphilis, and pigmentation of the skin may be produced without a pre-existing lesion by transudation of the colouring matter of the

blood. At a later period this polymorphous character of the eruption usually gives place to simple ulcerative or squamous lesions. The eruptive period as a whole may last for months. As regards the duration of the individual lesions little is known. The stains will often last for years. In one case I have seen, the pigmentation was still visible more than twenty years after the secondary lesion, of which it was a legacy, had disappeared.

There are certain general characters which distinguish secondary eruptions. Though no single one of these is pathognomonic, the combination of two or more of them affords *primâ facie* evidence of a syphilitic origin, and the combination of several is quite conclusive. In the first place, secondary eruptions are usually *symmetrical*. This arises from the fact that syphilis in the stage represented by these lesions is a general and not a local disease. Again, secondary eruptions are *polymorphous*. This is the most distinctive characteristic of the eruption taken as a whole. Not only are the individual lesions multiform, but the grouping of them presents the greatest diversity of appearance. Sometimes the papules are arranged in lines like lichen ruber planus; or the papules, pustules, etc., may be set in isolated patches or irregular clusters; or the arrangement may be corymbose, several lesions being clustered together, or a large one being surrounded by a circlet of smaller ones, as in erythema iris. Secondary lesions, both on the skin and on the mucous membrane, have a tendency to assume crescentic outlines. Not only may all the different elementary lesions be present at the same time, but they are there in all stages of their development. Only erythema multiforme or dermatitis herpetiformis in their most variegated aspect can be compared as regards polymorphism with the eruptive stage of syphilis. The lesions in

the latter case, however, have this character distinguishing them sharply from both these conditions, namely, the absence of itching. The *colour* of secondary lesions is remarkable, but not being peculiar to them can hardly be taken as a trustworthy guide to their nature. The prevailing tone of these lesions is a tint resembling the lean of raw ham, passing into a coppery colour, and leaving a permanent brown pigmentation. The coppery colour of a lesion may be suggestive, but taken by itself it is of comparatively little clinical importance, and a diagnosis of syphilis should never be based on that alone. As regards *position*, the first rash, as already said, comes out on the front of the abdomen, next on the chest, then on the front of the arms and the back of the legs, next on the palms and soles, the back and sides of the neck, and sometimes on the face. The scaly lesions which simulate psoriasis affect the flexor rather than the extensor surfaces of the limbs, and are seldom seen on the tips of the elbows and knees, the typical situations of true psoriasis. The epigastric and hypochondriac regions, the nape of the neck, and the forehead near the margin of the hair, are situations much affected by syphilitic lesions.

The earliest local manifestations of constitutional syphilis on mucous membranes are, as has been said, small ulcers on the tonsils. These have usually more or less the outline of a horse-shoe, with a yellowish floor and greyish-white borders. They generally pass away quickly. At a later period mucous patches and mucous tubercles may form on the cheeks, tongue, gums, lips, about the anus and vulva, and under the prepuce; these patches may prove obstinate.

Besides the lesions of the skin and mucous membrane which have been described, all the other tissues of the body—especially the eye, the bones and their

periosteum, the joints, and the nervous system—are liable to become involved. Iritis is of common occurrence from four to seven months after infection; and there may be symmetrical retinitis. The ear may be the seat of otitis media and interna. Slight periostitis and synovitis, giving rise to tenderness of the bones and rheumatoid pains, are common. Localised anæsthesia, due to peripheral neuritis, is said to occur (Fournier). All these symptoms are said to be symmetrical, and subside spontaneously in a short time. Permanent blindness or deafness may, however, result from the inflammation of the retina and internal ear.

In most cases secondary lesions disappear under treatment, and in about six months the patient may seem to be entirely free from the disease. He may, however, remain liable from time to time to "reminders" in the form of lesions intermediate in type between the secondary and the tertiary forms, and partaking to some extent of the characters of both. Among these "intermediate" lesions are sores on the sides of the tongue, and white patches with thickening on its dorsum (the so-called psoriasis linguæ or leukoplakia), red scaly areas with sinuous outlines on the scrotum, and patches of induration, covered with layers of thickened and desquamating epithelium on the palms of the hands (the so-called palmar psoriasis). The character which chiefly differentiates these from tertiary lesions is, that they tend to be symmetrical.

The exact duration of the secondary stage, that is to say, of the constitutional infectivity of the disease, is unknown. Almost all examples of accidental contagion during the secondary period occur within a comparatively short time of its commencement. The cutaneous and other phenomena, as a rule, cease by the end of the first year, but sometimes the later

secondary eruptions may continue until the tertiary local lesions make their appearance. This usually occurs in the third year, but it may take place as late as twenty years after infection. It must be understood that there is no sharp line of demarcation between the secondary and tertiary stages; on the contrary, these occasionally overlap. I have frequently seen in badly nourished patients lesions of tertiary type develop before those of the secondary stage had disappeared.

The course of syphilis, as a whole, is progressive, with periods of latency of variable length. There are certain circumstances, such as age, sex, personal habits and surroundings, the state of the general health, and treatment, which may have a modifying influence on its course and manifestations. As regards age, syphilis is usually mildest in young adults, and severest in infants. Females, as a rule, suffer more than males, as the primary sore in them often escapes observation, and treatment is therefore not begun till the disease has become firmly established in the system. The influence of the personal surroundings and habits of the patient is seen in the fact that the disease is generally worst in those who are insufficiently fed and clothed, and who are of uncleanly or dissipated habits. In a young adult of sound constitution it generally can be stamped out within a year of inoculation, and gives no further trouble. As regards the state of health, scrofula, gout, and rheumatism all seriously aggravate the disease, and the presence of renal mischief is a grave complication. When the disease has ceased to give open proof of its presence, it may be stirred up into activity by anything that injuriously affects the health. Treatment has unquestionably the most powerful influence on the course of syphilis. Hutchinson says, and I quite agree with him, that if the time

between the development of the primary sore and the period at which secondary manifestations are wont to show themselves is fully taken advantage of, the secondary stage will be modified in its course.

Tertiary lesions. -In the tertiary stage syphilis is again a local disease, and the lesions therefore show no tendency to symmetrical arrangement. All tissues may be attacked, the process consisting of slow inflammatory infiltration. The infiltration is at first diffuse, but becomes intensified at certain points, resulting in the formation of nodules (gummata). A gumma is a new growth which begins as a localised infiltration of the connective tissue with small round cells. A nodule is thus made in which new vessels appear, and which grows in size by infiltration of the surrounding parts, forming a new growth composed of granulation tissue. After attaining a certain size the tumour undergoes fatty degeneration, after which it softens and often breaks down into an ulcer, which heals when the mass has separated. The effects of the process vary according to the nature of the tissues in which it takes place. When the infiltration is situated near the surface of the integument, the breaking down of gummata gives rise to ulcers with a hard raised edge and an indurated base. A characteristic feature of tertiary ulcers is their tendency to become serpiginous. They have sinuous outlines, and show little or no tendency to spontaneous cure. Sometimes, however, they heal and leave dense scars, or they may cicatrise at one part while continuing to spread at another. They are usually few. On the skin the more common position of tertiary lesions is on the forehead at the margin of the scalp (constituting a later form of *corona veneris* than the papular eruption already described), the upper parts of the legs, the skin of the genitals in both sexes, the nape of the neck, and the back ;

frequently also the palm, or sole on one side. Tertiary lesions of the skin are not infrequently lupoid in type, and they may simulate lupus very closely (Plate VIII. Fig. 3). The chief point of distinction is that their progress is more rapid than that of lupus vulgaris. On the mucous membranes tertiary lesions have the character of chronic inflammation with ulceration, followed by the formation of tough cicatricial tissue and thickening. This may lead to great narrowing of natural passages (pharynx, rectum, vulva). Gummata may also form in any of the internal organs; the tongue, the muscles, the bones and the periosteum, the brain and spinal cord and their coverings, the nerves, the testicle and other viscera are all liable to attack. Sclerosis of the spinal cord, and of the small blood-vessels and arteries, leading to the formation of aneurysms or amyloid disease, are of occasional occurrence. When the skin is close to the periosteum it is often affected secondarily to the latter. Tertiary lesions nearly always leave enduring marks of their presence in atrophic scars, with thickening.

Hereditary syphilis.—The signs of hereditary syphilis do not usually show themselves until three weeks or a month after birth. The child is almost invariably free from any lesion of the skin or other parts when born, but a few cases of undoubtedly congenital syphilis have been reported by practitioners who have had opportunities of seeing large numbers of children immediately after birth in lying-in hospitals. In some cases a form of bullous pemphigoid eruption occurs within a day or two after birth, and may cause death within a week. This attacks any part of the skin, but has a special proclivity for palms and soles. The first symptom, however, is usually a form of chronic coryza (snuffles). This is followed by a skin eruption, which may be papular,

scaly, pustular, or bullous. Condylomata about the buttock are common. Like the secondary eruptions in the adult the general eruption is symmetrical in distribution and transient in duration. Polymorphism is also a frequent characteristic of infantile syphilis, and the colour approximates to the tint of the lean of raw ham, as is seen in the adult. In fat babies the lesions frequently have the character of intertrigo, and the irritation of the urine and fæces gives rise to sores about the nates, and especially about the anus. Peeling patches of erythema on the face and neck are common. Sores are also apt to form about the corners of the mouth. The face often presents a peculiarly senile aspect; this, however, is not constant. The eruption is accompanied by wasting, debility, and fretfulness. The symptoms are generally at their height in the second, third, and fourth months after birth. The affection often ends in death, but, if the child survive, the symptoms will, as a rule, have disappeared by the end of the first year of life.

After the first year there comes a period of latency, which may last a variable time. Up to the age of 18 or 20 inflammatory affections of the eye and ear are frequent, but the skin is not usually the seat of any special lesions. There are no scaly or papular eruptions, and only in the rarest cases any ulcerative processes with the serpiginous character which has been described as being distinctive of tertiary syphilis in the adult. Of the late manifestations of inherited syphilis in adult age comparatively little is known. I have seen a case in which there was ulceration of the pharynx, accompanied by an eruption on the face somewhat resembling lupus.

Inherited syphilis as such cannot be transmitted. The stage of the acquired disease in the parent makes no difference in the disease that is transmitted, but

different children may inherit it in varying degrees of severity. It is only in extremely rare cases that a parent in the tertiary stage transmits the disease; indeed, in my opinion, it is doubtful if this ever happens.

The *diagnosis* of syphilis is usually sufficiently easy. The induration of the primary lesion, together with the enlargement and hardening of the nearest lymphatic glands, is in most cases sufficiently characteristic to enable the practitioner to give a positive opinion. It must be remembered, however, that hardness is not a constant feature of infecting sores, especially when seated on the lip, or on other parts where the tissue is loose; nor, on the other hand, can a chancre be at once pronounced to be non-infecting because of the absence of induration. The primary sore is most likely to be overlooked in women; and a very careful examination should therefore be made whenever possible. Primary sores in unusual situations, as on the face, may sometimes present difficulties; the practitioner should never allow himself to be misled by preconceived ideas as to the improbability of contagion, but should judge each case solely on the evidence before him. The discrimination between a primary sore on the face and malignant disease can often be made by the age of the patient, and by the chronicity of the process. In some instances, however, a certain diagnosis can only be arrived at after a certain length of time. In syphilis, more than in any other disease, the truth can be determined only by taking a comprehensive view of all the circumstances of the case—the history of the lesions, their characters, course and termination, and the effect of treatment upon them. When there is a clear history of infection or exposure thereto, the secondary lesions can generally easily be recognised. The mimicry of syphilis may, however, occasionally perplex the

observer. The general distinctive characters of secondary lesions that have been set forth—symmetry, coppery colour, position, polymorphism, and absence of itching, together with enlarged glands, sore throat or tongue—will, in most cases, suffice to identify the disease, even in the absence of a definite history or mark of a primary sore. It must, however, be repeated that it is not the presence of any one of these characters, nor even the combination of two or three of them, that can be relied upon; only the sum of them can be taken as affording solid ground for the diagnosis of syphilis. When there is any doubt the whole cutaneous surface should be examined, and in this way a characteristic lesion or mark will usually be discovered, which will give the clue that is wanted.

Apart from the general characteristics that have been mentioned, there are certain features whereby the elementary lesions themselves may be distinguished from similar ones not syphilitic in origin. Thus, in the case of macular syphilides, a cool atmosphere will bring them out in vivid colours, even when almost completely faded. From the erythematous drug rashes they are differentiated by the absence of itching or burning; tinea versicolor and ringworm of the body, both of which are occasionally simulated more or less closely by macular syphilides, can be identified by their respective parasites. Seborrhœa corporis is often very difficult to distinguish from a macular syphilide; indeed, the two affections are often associated. The wider distribution of the syphilide and the other evidences of the disease will settle the diagnosis. Squamous syphilides may sometimes be the seat of such an amount of scale formation as to be mistaken for ordinary psoriasis. Again, a papular rash in circles may simulate an annular psoriasis. In either case the

syphilitic nature of the lesion can usually be determined by the polymorphism of the eruption and the distribution of the disease, the elbows and knees, which are the favourite situations of psoriasis, being, as a rule, avoided by the syphilitic eruption. Moreover, while psoriasis prefers the extensor aspects, the papular syphilide has a partiality for the flexor surfaces of the limbs; there is also a difference in the appearance of the scales, those of the syphilitic lesion being thin and dirty white, while those of psoriasis have a characteristic silvery sheen, and are heaped up in layers. The history is of importance in both cases. The subject of true psoriasis will, as a rule, have had several previous attacks, and the disease can often be traced back to early life. In syphilis, on the other hand, a particular lesion is seldom repeated. The peculiar papular eruption of the palms and soles which occurs symmetrically as a secondary, and unilaterally as a tertiary, lesion, and which is sometimes inappropriately called "syphilitic psoriasis," may sometimes be confused with the dry chronic eczema that is met with in the same situation. The small papular syphilide may occasionally be difficult to distinguish from a widely diffused lichen ruber planus; in the latter, however, the rash is uniform, the papules are generally arranged in lines, and itching is usually severe. Eczematous lesions can generally be distinguished from those due to syphilis by the catarrhal character of the process, by their itching, and by the absence of other signs of syphilis.

Pustular syphilides occasionally resemble varicella. Acne varioliformis is sometimes simulated by syphilis. Here the diagnosis must be chiefly based on the absence of other signs of constitutional disease. Subcutaneous gummata may be mistaken for abscess, and on this supposition may be opened, when they

give issue not to pus, but to a gummy liquid. The breaking down of a gumma on the leg may give rise to an ulcer resembling the ordinary callous ulcer ; the true nature of the sore will be revealed by its proving refractory to ordinary treatment and giving way to antisyphilitic remedies. From lupus syphilitic lesions can usually be distinguished by the absence of the characteristic apple-jelly nodules, by the comparative rapidity of the process and by the age of the patient, lupus usually commencing in early life. Rodent ulcer and epithelioma may sometimes have to be distinguished from tertiary lesions. As a rule, in the cancerous ulcer a process of new growth has preceded the ulceration, and the characteristic hard edge and red, shining dry floor of the malignant ulcer will generally serve to identify it. The position of rodent ulcer on the upper part of the cheek, near the eyelid, or the side of the nose, or the temple, is another distinguishing feature. Lastly, the age of the patient counts for something, rodent ulcer, or epithelioma of the face, occurring, as a rule, only in people past middle life.

The diagnosis of inherited syphilis in early infancy is at times extremely easy, but at other times a matter of great difficulty. Snuffles, the wizened old-mannish aspect, the coppery eruptions, and the sores about the mouth and anus make up a sum of clinical phenomena that is characteristic. In some cases the history of the parents helps to elucidate the difficulty. In the adult who has been the subject of infantile syphilis the signs of the disease are seen in "the square forehead with prominent frontal eminences like budding horns, the sunken nose, the soft, pale, earthy-tinted skin, and the scars about the angles of the mouth," * and in the pegged and notched upper incisor and canine teeth. Besides these, signs of interstitial

* Hutchinson, "Syphilis," p. 84.

keratitis and choroiditis are often present, and deafness may have been left as a legacy from previous otitis.

The prognosis of syphilis depends on the age and general health of the patient, on the severity of the disease, and especially on the treatment. As already said, young adults will, under proper conditions, recover as a rule within a year of contagion. In persons of unhealthy constitution, or alcohol habit, or living in insanitary surroundings, the prospect is much less favourable. Syphilis contracted in middle life is very intractable, some authorities going so far as to say that if inoculated after the age of forty it is incurable. The mildness of the earlier symptoms affords no guarantee against the appearance of tertiary lesions of great and even fatal severity. The most important element in the prognosis, however, is the treatment.

The pathology of syphilis is that of chronic inflammation, in all probability caused by the action of a specific micro-organism. On this point, however, proof is still wanting. In 1884 Lustgarten described a bacillus which he had found in syphilitic lesions, primary, secondary, and tertiary; this bacillus took the same stain as those of tuberculosis and leprosy, but, unlike these, it could be decolorised by means of nitric and hydrochloric acids. A bacillus presenting the same characters has, however, been since found by other investigators in smegma and other normal secretions. Micrococci have been discovered in different syphilitic lesions by Klebs and other pathologists. The hard sore presents no special structural features; the process is simply one of cell infiltration with little trace of inflammatory action. The secondary lesions represent more or less advanced degrees of the angio-neurotic process, the papule being the rudimentary form out of which all the other lesions of that stage

are developed. In the same way the gumma may be called the parent of the tertiary lesions.

In the treatment of syphilis the object to be aimed at in the first instance is to remove the poison if possible before it has infected the constitution, or if that is impracticable, to destroy it or neutralise its action. If the primary sore is in a suitable position it should at once be removed by amputation. If, however, the sore has existed some time and the neighbouring glands are enlarged, mechanical removal is useless. The sore should then be treated antiseptically, and the internal administration of mercury should at once be begun. It is coming to be recognised that this drug if given in small doses frequently repeated is an excellent tonic, promoting tissue change and increasing the number of blood-corpuscles. The parasiticide action of the drug must also be taken into account. In syphilis, therefore, mercury acts in three ways: first, by improving the general health, and thus increasing the resistance of the organism to the poison; secondly, by promoting metabolism, and thereby favouring the elimination of the virus, especially by the saliva; thirdly, by destroying the poison in the blood when given internally and in the tissues when applied locally. There are undoubtedly some persons with whom mercury in any dose disagrees, but unless the idiosyncracy be very pronounced the effects of the mercury will probably be less injurious than those of the syphilitic poison.

Mercury may be given in various ways. By the mouth, the form which I usually adopt is not grey powder, but blue pill (gr. 1 to 3 t. d.). Grey powder is often used, but in my opinion is much more uncertain in its action. Plummer's pill is an especially useful form of administering mercury over long periods, as there is little risk of its producing salivation. I usually give $2\frac{1}{2}$ grains night and morning.

Perchloride of mercury may be given by the mouth (gr. $\frac{1}{32}$ to $\frac{1}{16}$), or better in the form of intramuscular injection by the method suggested by Bloxam. His solution is prepared by dissolving thirty-two grains of perchloride of mercury and sixteen grains of pure chloride of ammonium in distilled water, sufficient to yield two fluid ounces of product. Ten minims equal one-third grain of the salt. Ten minims, or less, according to circumstances, should be injected once a week into the gluteal muscles. I have watched many of his cases and have never seen local abscess produced nor any other bad symptom. The administration of mercury should not at first be pushed to the full physiological limit; it is generally sufficient to produce slight tenderness of the gums. Salivation should always be avoided if possible; when it occurs the lesions, indeed, are very rapidly cured, but the suspension of the drug which it necessitates is likely to be followed by troublesome consequences later.

During a course of mercury the patient should be particularly careful to keep his teeth perfectly clean, in order to minimise the risk of stomatitis; for the same reason it will be prudent for him to refrain from smoking. He must also be careful when he goes out to guard himself against cold, and he must be particular in his diet, so as to avoid disturbance of the bowels. Tonics, such as iron, quinine, etc., are to a certain extent antagonistic to mercury; indeed the drug has a better chance of producing its fullest beneficial effect when the patient is kept a little below his ordinary standard of health.

Under mercury administered steadily in small doses —that is, short of purgation and ptyalism— the primary lesion will speedily be cured and the last trace of induration will disappear in about a month.

As has already been said, if the administration of mercury be begun before the disease has entered the

constitutional stage, it will often happen that no secondary lesions develop. Nevertheless, the mercurial medication should be continued for six or even nine months; its suspension within that period is apt to be followed by the speedy appearance of secondary manifestations. If such do show themselves, they are comparatively trivial. In cases in which secondary lesions have developed, it will be wise to persevere with the mercury for at least one year after the disappearance of the eruption. The prolonged exhibition of mercury also makes the subsequent development of tertiary lesions less likely, though it cannot be considered an absolute safeguard. As a general rule of practice it may be laid down that in ordinary cases the administration of mercury should be continued, with occasional intermissions, for two—sometimes even three—years. The patient may then be considered tolerably safe from further manifestations of the disease. There is no fear of disordering the health by giving mercury in small doses for several months; on the contrary, patients so treated as a rule visibly improve in their general condition.

The constitutional effect of mercury may also be obtained by means of inunction. This method is often useful when the drug disagrees when given by the mouth, but its action is not so certain. Inunction is carried out by rubbing blue ointment vigorously into the patient's skin. It must be rubbed into different places from day to day, otherwise a mercurial eruption is almost sure to be set up. The ointment must not be washed off for some hours; the usual plan is for the patient to wrap himself in flannel and go to bed, taking a warm bath when he gets up on the following morning. The inunction system is very thoroughly carried out by trained rubbers under medical supervision at Aix-la-Chapelle, and the usual course lasts a month. The method can,

however, be carried out at the patient's own home, though without the special advantage of a watering-place "cure," namely, the regimen and general discipline to which patients at such places have to submit.

Another way of introducing mercury into the system is by the vapour bath. This is specially useful in rupia and ulcerating forms of the disease. Calomel (from one scruple to half a drachm), mixed with water, is vaporised over a small lamp, and the patient sits (from a quarter to half an hour) on a chair over the lamp, enveloped in a cloak. Fumigation has the same advantages as inunction, but both have the drawback of requiring the expenditure of much time and trouble.

Mercury may also be used locally with great advantage in the treatment of the more severe secondary syphilides. It may be applied to the skin in the form of an ointment containing gr. xv to xx of the ammonio-chloride to the ounce of lard, or oleate of mercury 1 to 2 per cent. The application of calomel to mucous tubercles soon causes their disappearance. In the mouth and throat mercury may be used as a gargle in the form of $\frac{1}{2}$ to 1 gr. of perchloride of mercury in ʒviij of distilled water.

In congenital syphilis the best method of administering mercury is the inunction of mercurial ointment combined with tonic treatment. If the skin eruption is very copious, grey powder, gr. j or less t.d., should be substituted for the inunction, watch being kept lest the treatment cause diarrhœa. The child should be kept under observation at least one year.

In the treatment of tertiary lesions iodide of potassium is the most important drug. As in this stage syphilis is a purely local disease, the drug is not given as an antidote to any poison that may be supposed to be still lingering in the system, but because of the peculiar property possessed by

iodine of causing the absorption of inflammatory products and hypertrophied tissue. It is well to begin with small doses and gradually increase them as required.

Iodide of potassium has often a very depressing effect on the patient, and the iodide of sodium may often advantageously be substituted for it, or the iodides of sodium, potassium, and ammonium may be combined. The addition of ammonia greatly increases the efficacy of the iodides. The tendency of the iodides to cause skin lesions of a peculiar character must not be forgotten, and the practitioner must be careful not to push the drug under the mistaken notion that such lesions are syphilitic. When tissue change is slow the iodide may be combined with perchloride of mercury as follows:

℞ Hydrarg. bichlor. ... ... gr. $\frac{1}{10}$
Potass. iodid. ... ... gr. v.
Sp. ammon. arom. ... ... ʒss.
Aq. ... ... ad ʒj

Sometimes, after a prolonged administration of the iodides, they seem to lose their effect. In such circumstances it is well to suspend the drug for a time, and give mercury in place of it, returning again at a later period to the iodide, if necessary. The effect of this alteration of treatment is often very marked.

Tertiary lesions can often be cured by local treatment alone. For this purpose there is nothing so rapid or so sure in its effects as iodoform, which may be applied either as a powder (dusted on or blown over the affected surface with an insufflator) or in the form of an ointment (ʒj to ʒj of vaseline or lard). On account of the disagreeable smell of iodoform, iodol or dermatol may be substituted for it. Ulcerating patches can frequently be efficiently dealt with by the free application of acid nitrate of

mercury, care being taken thoroughly to destroy the lesion.

The general principles of treatment of syphilis may be summed up as follows: If the patient comes under observation as soon as the primary lesion has appeared, remove it with the knife; in any case, begin the internal administration of mercury at once. Continue this for a year, or, if secondary symptoms manifest themselves, for two or even three years. If the patient cannot bear the mercury when given by the mouth, try one or all the other methods described. If tertiary lesions develop, give iodide of potassium, sodium, or ammonium, or all three, discontinuing the administration if any sign of iodism shows itself. Use antiseptics locally. If at any stage of the disease the general health shows signs of failing, administer general tonic treatment, especially cod-liver oil and iron, good food, and sea air.

CHAPTER XIX.

GENERAL INOCULABLE DISEASES (*concluded*).

LEPROSY—YAWS—GLANDERS.

Leprosy is an infective disease endemic in certain parts of the world, manifesting itself primarily by lesions of the skin or of the peripheral nerves, and secondarily attacking most of the other tissues and organs of the body, undermining the constitution, running a slow course, and leading directly or indirectly to death. All cases of leprosy have certain features in common, and the disease presents a definite succession of stages. The *incubation* stage usually extends over two or three years, but sometimes much longer. Danielssen and Boeck record a case in which it lasted ten years, and I have seen one in which the evidence pointed to an incubation period of eight years. A *prodromal period* usually follows, analogous to the febrile stage of syphilis. The patient complains of languor and drowsiness, muscular and mental weakness, headache and giddiness, dyspepsia, dryness of the nose, and epistaxis. General sweating is often a prominent symptom, and sometimes local anidrosis may be observed. Constipation or diarrhœa may be present, but, according to Leloir, this is exceptional. Next comes the period of *invasion*, usually marked by a rigor and great rise of temperature, as high as 103° F. or 104° F. After a variable period the characteristic leprous spots appear on the face, limbs, or trunk, the most common positions being the face, especially the forehead, the nose, the cheeks, and the ears; the extensor surfaces of the limbs and the buttocks are also not infrequently

the seat of the eruption. The maculæ consist of erythematous patches, in which not only hyperæmia but a certain amount of infiltration is usually present, and of areas in which the pigment is either increased or diminished. As in small-pox, the fever and other symptoms of invasion subside on the appearance of the eruption. The maculæ vary in appearance, according to the natural colour of the skin. In white races they are usually of a light red colour; in Norway they are generally lenticular crimson patches (Danielssen and Boeck). The colour is brighter at the edge than in the centre, which may become white and atrophic. The size of the spots varies from that of a pin's head to the palm of the hand, or larger. They are smooth and shining, with a well-defined outline. On the face they may simulate sunblain, or, by their slightly-raised margin and the confluence of two or three of them, they may present the appearance of erythema gyratum. Fresh crops of maculæ continue to come out at irregular intervals for a considerable time, each outburst being accompanied by some exacerbation of the febrile phenomena. The spots are not at first the seat of altered sensation. They may, however, be hyperæsthetic; but later, as a rule, they become more or less anæsthetic, according to the amount of pressure of the leprous infiltration on the peripheral nerves. The anæsthesia is, however, often not limited to the macules, areas of apparently normal skin being found to have lost their sensibility. It is often by an accidental discovery of this kind that the patient is made aware that he is the subject of leprosy. The mucous membranes are, as a rule, not appreciably affected at this stage (Leloir).

So far the cutaneous manifestations are common to all cases of leprosy with the usual variations of intensity in different individuals. As a general rule, the prodromata are more conspicuous and severe in

the case of a developing skin leprosy than in the nervous form of the affection. In the latter there may be little or no fever, but rather a persistent feeling of chilliness, and the other symptoms of constitutional disorder may be almost entirely absent.

In its subsequent course leprosy may follow one of two different lines of evolution, according as the disease directs the weight of its attack against the skin or the peripheral nervous system. In a certain proportion of cases both forms may be combined, and thus three distinct types of leprosy are met with—namely, (1) skin, tubercular, or nodular leprosy; (2) nerve or anæsthetic leprosy; (3) mixed or complete leprosy. The least common of these varieties is the last. Of the two others the anæsthetic form is most frequent in tropical countries, and the nodular in Europe. Though pathologically the same disease, they present such marked clinical differences that they require to be described separately.

Skin leprosy.—After a period of invasion, which may last for a few weeks or for some months, the maculæ undergo transformation into nodules by sudden increase of inflammatory infiltration; they also develop independently in the skin and under it. The evolution of the nodules is usually very slow, but in rare cases it may be comparatively rapid, being ushered in by an erythematous blush, simulating erysipelas and accompanied by febrile phenomena. Their size, when fully developed, varies from that of a small shot to that of a filbert or larger. They are round or oval in outline, raised considerably above the level of the skin, and sometimes surrounded by a considerable zone of diffuse infiltration. Sometimes they have the normal tint of the skin, but the colour varies greatly according to the degree of inflammatory reaction. When this is slight they may simulate lupus nodules; at other times their brownish red tint makes them

resemble syphilitic papules. When the skin around is congested they may simulate erythema nodosum

Fig. 6.—Nodular Leprosy. (From a replica of model No. 1311 of the Hôpital St. Louis, Paris.)

or rosacea; when suppuration occurs they may resemble sycosis. As in other chronic inflammations of the skin, telangiectasis may be observed on the

surface of the nodules. The local temperature is sometimes above the normal. The nodules are elastic to the touch, conveying to the finger an indiarubber-like sensation, resembling that noticed in early gummata. At first they are sometimes hyperæsthetic, later they generally become the seat of temporary or permanent anæsthesia. In some cases sensation is not altered. Extensive areas of skin are frequently involved in the process of inflammatory infiltration, and firm flat plates, as of hard œdema, with either a smooth or a nodular surface, can be felt.

This most frequently occurs on the limbs, but is sometimes seen on the face. The colour of these plates is at first red or purple, and afterwards deepens into brown or even black. They are met with chiefly in the most chronic cases. The affected skin, especially in the nodular stage, is often the seat of seborrhœa. This gives the nodules, especially on the face, a characteristic burnished appearance. In negroes the whole skin, even where there are no apparent lesions, is usually greasy, and has a soapy feeling to the touch (Hillis). The hairs in the affected areas fall out. In their distribution the nodules present certain peculiarities distinguishing them more particularly from syphilitic lesions. In the vast majority of cases the face and the ears are the first points attacked. The massing of the nodules on the brow (Fig. 6), and the consequent deepening of the natural furrows at the root of the nose, give the countenance the characteristic lion-like aspect which was the origin of one of the ancient names for leprosy, *leontiasis*. The enlargement of the ears also gives a peculiar and characteristic aspect (Fig. 7).

The nodules sometimes develop in the first instance on the limbs or the buttocks. They may for a time be confined to the regions in which they first make their appearance, but, as the disease progresses,

fresh crops of them come out on the arms, the trunk, and the abdomen. On the upper limbs the usual positions where the nodules are found are the back of the elbows, the postero-external aspect of the forearms, the wrists, and the postero-lateral aspects of the fingers. The terminal phalanges are the last to be affected. On the lower limbs the corresponding regions are the usual seats of nodules. The nails, especially those of the toes, are often involved, and become deformed. On the chest and belly the nodules are usually small; at the top of the thigh, in Scarpa's triangle, they are larger and more numerous. They are extremely rare on the hairy scalp. Desquamation of the cuticle covering the nodules is of common occurrence; it may be excessive, giving rise to an appearance somewhat resembling ichthyosis.

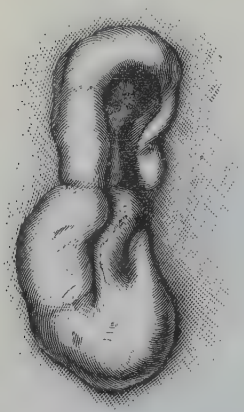

Fig. 7.—Pinna of the Ear of a Person suffering from Nodular Leprosy. (From the same case as Fig. 6.)

The mucous membranes are also frequently the seat of nodules, the usual parts attacked being the conjunctiva and the mucous lining of the nose, mouth, pharynx, and larynx. In these situations the nodules have a red or grey colour, and may resemble syphilitic lesions. When the tongue is greatly infiltrated, the nodules are separated by depressions which may simulate syphilitic fissures. The affected parts are usually anæsthetic in the later stages, though the sense of taste is long retained. The breath has a

peculiar sickening fœtor. In the nasal fossæ destructive ulceration of the septum often leads to flattening of the nose, resembling that seen in syphilis. In the eye the leprous inflammation often extends from the cornea to the iris, causing great pain and slow destruction of the globe. The thickening of the laryngeal mucous membrane gives rise to hoarseness, and, as the infiltration proceeds and the vocal cords become more and more immobilised, the voice is reduced to a whisper. The gradual narrowing of the glottis that results leads to increasing difficulty in breathing, and the sudden occurrence of œdema of the larynx not infrequently makes tracheotomy necessary.

This stage of leprosy is usually very slowly progressive. The nodules increase in size, and while fresh crops appear from time to time, some of the older nodules undergo softening.

Sooner or later the process enters on a new phase by the supervention of ulceration. Both on the skin and on the mucous membranes nodules have a natural tendency to break down, though in rare instances they may, like the lesions in tubercle and syphilis, undergo cicatricial shrinking without previous ulceration. In a few cases the disintegration is brought about by a suppurative process. The nodules become transformed into pustules which open and discharge their contents, leaving steep bordered ulcers. These, as a rule, soon heal, leaving scars.

Often the nodules and plates become red, itchy, or painful, soften and break down, leaving an ulcer with a hard, prominent, sinuous edge and a grey base which secretes a purulent, sometimes sanious, discharge. These ulcers, like those of the corresponding period of syphilis, will usually cicatrise under treatment, but they often leave hideous deformities. When neglected a more acute inflammatory process may

supervene and cause rapid extension of the ulcer, especially on the fingers and toes, and implication of tendons, bones, and joints, which often leads to gangrene. These processes may be complicated by the enlargement and suppuration of lymphatic glands, especially those in the inguinal and cervical regions. The liver, spleen, and mesenteric glands may be enlarged. If the patient survive and the ulcers heal, the peripheral nerves may become affected and the phenomena of nerve-leprosy supervene.

Nerve leprosy.—As already said, the prodromal symptoms of both varieties of leprosy are essentially the same. There are, however, certain minor differences by which the experienced practitioner can sometimes foretell along which line the evolution of the disease will probably proceed. While the constitutional disturbance and the eruptive phenomena are, as a rule, more marked when the disease is about to make the skin the particular object of its attack, the advent of the anæsthetic form is often foreshadowed by neuralgic pains and cutaneous hyperæsthesia. The patient will experience the sensation of "pins and needles" when slight pressure is made over the track of superficial nerves. Neuralgic pain in the great toe has sometimes been mistaken for gout. Rheumatoid pains, backache, and lumbago are of frequent occurrence. Pigmentary changes in the skin following the maculæ of the invasion period are much more common in anæsthetic than in nodular leprosy. These changes are of two kinds: in some the affected area is paler than the natural skin—sometimes even absolutely white; in others, again, they are deeply pigmented, the staining being brown in light-skinned races, and often of ebony blackness in dark races. The pigmented patches are usually symmetrical, occurring chiefly on the face, limbs, and trunk. They are rare on mucous membranes, and unknown on the scalp.

Towards the end of the eruptive period, if not before, the pigment often disappears from the macules, and scarring frequently occurs. On these depigmented areas anæsthesia often develops. Anidrosis, which may or may not have been preceded by hyperidrosis, occurs on the affected areas and around them; the secretion of sebum is arrested, the hairs become blanched and fall out. The falling-out of the eyebrows is in some places looked upon by the laity as the first sign of leprosy. A point of difference between the macules of nodular leprosy and those of the anæsthetic form is, that while the former, as already said, become converted into nodules by the formation of inflammatory new tissue, in nerve-leprosy only pigmentary changes occur. These may be fugitive; on the other hand they are sometimes permanent. In some rare cases they may be altogether wanting. The eruptive stage is ushered in by intensification of neuralgic pains with hyperæsthesia, often intense, of the macular areas and the skin around them, indicating a further development of the neuritic process which is the underlying pathological factor in this form of leprosy. The neuralgic pains increase in severity, and an eruption of bullous lesions takes place, which are independent of the macules though they may affect the same site (Leloir). The bullous eruption, like pemphigus, is of extremely rapid development, and its appearance may be preceded by fever and general disturbance. The bullæ usually appear one by one. Their size varies from that of a millet-seed to that of a turkey's egg. They have absolutely the same characters as those of ordinary pemphigus. They increase rapidly, sometimes doubling in size in a few days. They rupture and form a large crust, generally leaving a pale patch bordered by a brown ring, sometimes a brown patch, rarely a scar. On removing the crust a grey surface is exposed,

consisting of altered rete, the epidermis being cast off by suppuration. Thus thick yellow scabs or crusts may be formed, sometimes resembling rupia. A succession of crusts may form and fall off, leaving at last a granulating surface, which in time gives place to a very white scar. Sometimes the bulla aborts and a parchment-like scale forms and separates, leaving a hyperæsthetic ulcer. The bullous eruption chiefly affects the hands and feet, the backs of the elbows, and the fronts of the knees, but it may be found on any part of the body. It may continue for years, and after it has disappeared ulcers may remain. During the period occupied by the bullous eruption, nodular thickenings form on the peripheral nerve-trunks, and in certain situations, as on the ulnar nerve at the elbow, they can easily be felt.

The eruption at this stage may remain more or less stationary for years, or it may spread all over the body, making the whole skin, or extensive areas of it, atrophied and white. On the face the skin has often a peculiar tense appearance, as though drawn too tightly over the features, giving the countenance a fixed, expressionless look. Meanwhile, the peripheral neuritis becomes more and more general, and as different nerves are involved, a great variety of paralytic and trophoneurotic symptoms is induced. Among these are :— (1) *Hyperæsthesia.* This may persist for years. It generally begins on the limbs, sometimes on the face, and the trunk is not infrequently affected. Walking, and even the raising of food to the mouth, may be impossible. (2) *Neuralgic pains.* These are paroxysmal, often coming on at night. They are often of extreme intensity. Thickenings can often be felt on the affected nerves. (3) *Alterations in the sweat secretion.* This is a frequent phenomenon. The secretion may be suppressed on the limbs, while at the same time there may be excessive sweating on the trunk. At a

later stage, as the neuritis progresses, (4) *anæsthesia* usually takes the place of hyperæsthesia. It begins on the limbs and very rarely attacks the trunk. On the face it has the same distribution as the previous neuralgia. The loss of sensation is at first confined to the skin, but in time it extends to the subcutaneous tissue and becomes absolute. The mucous membranes of the mouth, eye, and nose may also become

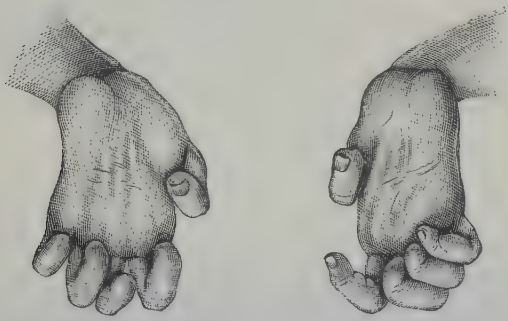

Fig. 8.—Claw-like Hand in Nerve Leprosy. (From a photograph of a patient under my care.)

utterly insensitive. As a result of paralysis, (5) *Muscular atrophy* is observed, especially in the hands. The thenar and hypothenar eminences are the first to waste, then the interossei; wrist-drop occurs, and the second and third phalanges are bent inwards, giving the fingers the aspect of claws (Fig. 8). The feet are often similarly affected, so that progressive muscular atrophy is simulated. Sometimes the muscular atrophy is masked by hard œdema. Among other changes due to the advancing neuritis purulent conjunctivitis, thickening of the conjunctiva, ulcer of the cornea, and iritis may occur. The septum nasi may undergo absorption, with the result that the

nose falls in. The gums may shrink and the teeth fall out. Mutilations are of frequent occurrence. The atrophied shrivelled skin ulcerates, and as the ulcers deepen joints are laid open and phalanges drop off. Such mutilations are confined to the hands and feet; the tarsus and carpus are rarely affected. Mutilation may also result from interstitial absorption of the phalangeal, metacarpal, or metatarsal bones, unaccompanied by ulceration. The stumps are often bulbous. The nails may be greatly deformed, but they do not usually drop off for a long time. In some cases a blue soft spot appears on an anæsthetic area after a febrile attack. The skin breaks and the matter escapes, leaving an indolent ulcer which gradually excavates the tissues, laying bare muscles and bones. At this stage the patient may die of pyæmia. In other cases dry gangrene of the fingers and toes supervenes. The hands and feet may become the seat of perforating ulcers, exactly resembling those seen in cases of locomotor ataxy. Gastric "crises" similar to those occurring in that disease are also of not infrequent occurrence in leprosy.

In the last stage of the disease the deformity is horrible. The intelligence is often lost and death occurs from colliquative diarrhœa, marasmus, tetanic convulsions, intercurrent pneumonia, or pleurisy. In the nodular form of the disease phthisis and nephritis are frequent complications and one or other of these diseases is in a considerable proportion of cases the direct cause of death.

Mixed leprosy.—In some cases of leprosy both nodular skin lesions and the changes due to leprous neuritis are present. In such circumstances the features of the two forms are combined. Anæsthetic leprosy may supervene on the nodular form, but it is more often the case that the latter shows itself some

months after the commencement of the former. Some cases, however, are from the outset of the mixed or "complete" type, and in these the disease runs a more rapid course than in either of the other varieties.

The etiology of leprosy is still wrapt in a good deal of obscurity. The existence of a specific bacillus in the tissues affected with the disease was proved by Armauer Hansen in 1874, and the evidence that this micro-organism is the exciting cause of leprosy is now generally accepted as conclusive; very little, however, is definitely known as to the actual mode of infection, or as to the conditions necessary for the growth of the germ. Among the predisposing causes are prolonged exposure to cold and wet, insufficient and improper food, and generally anything that depresses the health. The wide geographical distribution of leprosy seems to negative the idea that climate is a factor in its causation. It is endemic in certain limited regions in Norway, and to a much less extent in Sweden, in Russia, especially on the shores of the Baltic, in Italy, France, Spain, Portugal, Greece, and Turkey. In Asia it is largely prevalent in China, India, Turkestan, and elsewhere. In Africa, which used to be looked upon as its birthplace, it is also widely diffused. In North America it is found in scattered spots; in Central America it is relatively common, and in some parts of South America, especially in Brazil, it may almost be said to be rife. In the West Indies it is not uncommon; it occurs in some parts of Australasia, and it rages with almost epidemic virulence in the Sandwich Islands, into which it was first imported within the memory of men not much past middle age. It ceased to be endemic in the British Islands towards the end of the sixteenth century, though what is believed to have been the last endemic case occurred in the Shetland Isles as late as the beginning of the present

century. A climatic feature common to most of the favourite haunts of leprosy is the proximity of water, but the exceptions to this rule are sufficiently numerous to forbid its being made the basis of an induction. That some peculiarity of climate, or perhaps rather of soil, has a very decided influence on the development of leprosy is clearly shown by the fact that the children of lepers—who, from living under the same conditions as their parents and in frequent and intimate contact with them, are particularly likely to be attacked—have an excellent chance of escape if they are removed from the infected district at an early age. Even when the disease has actually given signs of its presence it sometimes seems to be arrested, or at least greatly modified, by transference of the patient to a place free from leprosy (Hutchinson).

The real problem in the causation of leprosy is to determine how the bacillus gains access to the body. From ancient times the food has been regarded as the vehicle of the poison, fish being looked upon with especial suspicion. There is, however, no trustworthy evidence of the disease ever having been conveyed by food of any kind, and, as regards fish in particular, there is abundant proof that persons may contract leprosy who have never had the opportunity of eating fish. From the analogy of kindred diseases like syphilis and tuberculosis it is probable that the virus of leprosy is transmitted by inoculation, though the prolonged incubation period of the disease makes it very difficult to trace individual cases to definite contagion. Experimental inoculation in the human subject has so far given negative or ambiguous results, and in spite of persevering attempts by some of the most experienced bacteriologists of the day, it is doubtful whether the bacillus has yet been successfully

cultivated. In a few cases, however, leprosy has been communicated by vaccination.*

If the bacillary origin of leprosy be admitted, it is impossible to escape from the conclusion that the disease is at least potentially contagious, and what is known as to its mode of spreading, both in ancient times and in our own day, affords strong presumptive evidence that contagion is the principal element in its diffusion. On any other theory it is impossible to explain the development and dissemination of leprosy in a perfectly virgin soil like that of the Sandwich Islands, following the importation of the disease from without. The decrease in the prevalence of the disease which has always followed strict isolation of lepers, is a practical proof of its contagious nature. Few people, I imagine, will agree with Hutchinson that the extinction of leprosy throughout Europe, in the sixteenth century, was a result of the Reformation and the diminished consumption of fish, which was one of the consequences of that event. The stamping out of the disease is much more likely to have been the result of the terribly drastic methods of "segregation" adopted by our forefathers.

Confirmatory evidence is afforded by the modern instance of Madagascar, where, since segregation of lepers has been abandoned, the disease, which previously was of very limited distribution, has rapidly increased. It is certain, however, that leprosy is not contagious in the sense in which syphilis is contagious, but only in a limited sense, like tubercle. The bacillus may be implanted by contact, but it can only take root when the soil is particularly favourable to

* Two cases in which this occurred have been reported by Daubler, *Monatsh. f. prakt. Dermatol.*, Bd. viii. p. 123. Others have been reported by Arning, *Arch. f. Derm. u. Syph.*, January, 1891.

its development. In what this favourable condition of the soil may consist is not exactly known, but it is probable that the mode of life, hygienic surroundings, and constitutional state of the patient, have a powerful influence in determining the degree of his susceptibility to the infection.

Heredity has probably only an indirect influence. As the children usually inherit not only their constitution, but their social condition and environment, from their parents, they may no doubt inherit therewith a soil favourable to the growth of the bacillus. Many cases of supposed hereditary transmission of the disease are really examples of contagion, for which the intimacy of family life affords special opportunities. The age at which the disease usually appears—from 8 to 15 years—is against the notion of its being, to any large extent, hereditary.

The pathology of leprosy is that of inflammation beginning in the skin or in the peripheral nerves in response to irritation by the specific micro-organism which is the actual cause of the disease. The leprous nodule is composed of granulation tissue together with special "lepra cells" and giant cells. The essential part of the leprous process is the infiltration of the tissues of the affected parts with this modified granulation tissue, and the slowness of the process as compared with lupus and syphilis is owing to the slight vascularity of the new growth. In the skin the change commences in the corium, and the gradually increasing pressure of the infiltrating material on the vessels, glands, and follicles destroys the normal elements of the integument; these are replaced by the leprous neoplasm, which in turn becomes disintegrated, causing deep ulcers. In nerve leprosy the infiltration takes place around the trunks of the peripheral nerves and penetrates between their fibres, at first irritating them (thus causing hyperæsthesia),

then compressing them (causing anæsthesia), and destroying their conductivity (thus giving rise to paralysis). The bacillus (Fig. 5, B) is a straight or very slightly curved rod-shaped organism, about $\frac{1}{5000}$ of an inch in length. The bacilli occur in clumps within the lepra cells in the lesions of the skin, mucous membranes, and other affected tissues; the blood-vessels going to the part are sometimes seen thickly packed with them. The same bacillus is found in the diseased tissues taken from lepers in every part of the world, and it can always be discovered if properly looked for. The reason of the failure of experimental inoculations may possibly be that passage through an intermediate host is necessary to make the bacillus capable of growing in the animal body. According as the bacilli invade the different internal organs, various complications may be induced. There are many points of resemblance between tuberculosis and leprosy; nothing is yet definitely known, however, as to the connection between them, beyond the fact that the affected tissues react to tuberculin, and a considerable proportion of lepers die of phthisis.

In a well-marked case of leprosy, whether of the nodular or the anæsthetic form, the diagnosis presents no difficulty. In the prodromal stage the symptoms may sometimes suggest rheumatism or malaria, but the appearance of the leprous spots or of anæsthetic patches will soon reveal the nature of the disease. In the macular period there may occasionally be some possibility of confusion with erythema or syphilitic roseola. In the former, however, there is no disorder of sensation, and little or no constitutional disturbance, and the lesions are transitory; while the latter can often be excluded by the absence of history of a primary sore and of other characteristic signs of the disease. In the nodular and ulcerative stages the lesions of leprosy sometimes bear a more or less close resemblance

to those of syphilis and lupus, but the presence of anæsthesia will generally serve to identify the disease. It should be remembered, however, that leprosy and syphilis sometimes co-exist. In the early stage of nodular leprosy the nodules are occasionally exactly like those of erythema nodosum, and the resemblance may be all the closer from the presence of pains about the joints. The rapid disappearance of the lumps in the former condition will speedily remove all doubt; but if the patient has lived in a leprous district for any time it will be well to reserve judgment for a while as to the nature of the affection.

The prognosis of leprosy as regards cure is of the gloomiest. In some very exceptional cases, however, permanent recovery has been known to take place. The prospect is more favourable in the pure anæsthetic than in the nodular form of the disease. The average duration of life in the former is about twenty, and in the latter about ten, years. Nodular leprosy sometimes runs a very acute course, however, proving fatal in a year; and on the other hand, in nerve leprosy life may be prolonged for thirty or forty years. Early treatment, and especially removal from an infected district, may do something to improve the patient's condition and increase his chances of recovery.

The treatment of leprosy must be directed to the alleviation of symptoms and the improvement of the sufferer's general health. There is no antidote for the disease. Tuberculin, which at first seemed to offer a hope that a curative agent had been discovered, only quickens the activity of the process. Chaulmoogra oil (from the *gynocardia odorata*) given internally in doses of three minims thrice daily after meals, and rubbed for two or three hours a day in the form of an ointment composed of equal parts of the oil and lard, sometimes does good. Arsenic is sometimes of marked use,

especially in the skin variety. Gurjun oil (from *dipterocarpus turbinatus*) given internally in an emulsion consisting of one part of the oil to three of lime-water (ʒss), and applied locally (in the same way as the chaulmoogra ointment) in a liniment of equal parts of the oil and lime-water, is also well spoken of by those who have tried it in the tropics. Sulphur baths are useful, especially in the tropics, where scabies is a frequent complication of leprosy. The ulcers and other lesions must be treated on general surgical principles, the greatest cleanliness and the strictest antisepsis being cardinal principles in the local treatment, not only for the sake of the patient, but of those who have to minister to him. Nerve-stretching has sometimes proved of service in relieving the severe neuralgic pains which add so greatly to the leper's sufferings. When the throat is the seat of disease, the practitioner must always be prepared to perform tracheotomy. The constitutional symptoms may also be treated on general principles, quinine being given in full doses when fever is present, and diarrhœa and other complications being dealt with by the usual remedies. Cod-liver oil and a liberal supply of nourishing food, with stimulants according to indications, are most important adjuncts to medical and surgical treatment. The patient should, if possible, be removed at the earliest moment from any place in which the disease is endemic.

Strict isolation is the only trustworthy means of checking the spread of leprosy, as is shown by the experience of Norway. Segregation, if properly carried out, is not only a protection to the community at large, but is greatly to the advantage of the lepers themselves, who thus receive better treatment than they could otherwise, in the majority of cases, command.

Yaws *—also known as frambœsia (from the

* The account of yaws here given is mainly founded on the

French *framboise*, a raspberry), the *paranghi* of Ceylon, the *coco* of Fiji, Amboyna button, etc.—is a disease caused by the inoculation of a specific virus, characterised by eruptive and ulcerative lesions of the skin, with involvement of the other tissues in the later stages, and generally by greater or less constitutional disturbance. It is endemic on the West Coast of Africa, in the West Indies, in some parts of North and South America, in Madagascar, Ceylon, and other tropical countries.

Four distinct stages are recognised in the evolution of the disease. The *incubation period* is estimated as lasting from three to ten weeks. The *primary period* corresponds with the life-history of the inoculation sore. This consists of a papule which may appear on the lip, the breast, the groin, the genitals, or the perinæum. In about a week this papule becomes yellow at the apex, and seven days later discharges and dries up into a scab. On removing this scab a small ulcer with raised edge and a floor covered with granulations are discovered. The ulcer heals in a fortnight, but may persist for two months; it leaves an insignificant scar.

The *secondary* stage begins, about a month after the appearance of the inoculation sore, with febrile phenomena, intermittent in type, and of greater or less intensity, sometimes with graver symptoms of constitutional disorder, such as albuminuria, hæmaturia, or epistaxis. After a variable time from the onset of the fever an eruption of tiny red spots, like those of "prickly heat," appears, the fever generally subsiding as the rash becomes developed. The eruption, which is preceded by itching, appears in the form of small papules on the face and neck, and spreads downwards, the whole body being covered usually by the end of the third day. In a week the papules become yellow

excellent description in Rat's monograph ("Yaws," London, 1891).

on the top, and begin to increase in size, so that by the end of the third week they measure a quarter of an inch in width and an eighth of an inch in height. Meanwhile the yellow heads have become transformed into scabs, beneath which is a heap of granulations grouped together so as to present the appearance of a raspberry; this is the characteristic lesion of yaws. The granulations secrete a small amount of pus and the lesions give off a musty odour. After a time the granulations lose their florid aspect and become pale or even white. Sometimes the papules are arranged in rings, especially round the eyes, nose, mouth, and genitals. They are sometimes seen inside the mouth and the vagina, also in the nasal fossæ and the external auditory meatus. The ulcerated papules are only slightly sensitive, but itching, as a rule, is very pronounced. In most cases healing takes place beneath the scabs, which separate about the end of the second month from the appearance of the rash. Pale spots are left, which in negroes become darker, and in whites lighter, than the surrounding skin. The spots are generally permanent, and are most conspicuous about the mouth, chin, and lower jaw. The lesions are always accompanied by a greater or lesser amount of anæmia; in weakly persons, and in cases where treatment is neglected, healing may be greatly protracted. The papules may remain stationary for many months, or they may extend and, by coalescence, form large deep ulcers, which leave considerable deformities, or cause death from septicæmia, pyæmia, or exhaustion. In the palms and soles the ulcers usually assume the form of fissures. In children the disease runs an acute course; in the adult the process is more chronic. The description of the eruptive stage which has been given applies to the majority of cases, but variations in the appearance, and especially in the amount of the eruption, are not infrequent. Thus, instead of definite

papules, only slightly scaly patches may be visible. Sometimes the eruption is limited to the extensor aspect of the fore-arm and leg.

In unfavourable cases a *tertiary period*, characterised by lesions no longer limited to the skin, but involving the deep tissues, may supervene. The most characteristic tertiary lesion is a nodular infiltration of the subcutaneous tissue, which generally leads to the formation of superficial ulcers, which spread serpiginously. New nodules frequently appear in the neighbourhood of the older ones, and masses resembling syphilitic gummata may form and break down into ulcers. The favourite position of these late ulcers is the leg below the knee, especially round the ankle. They are also common about the lips, and may be met with in any part of the body. Deep fissures are often present on the hands and feet; the pain on walking caused by them in the latter situation gives rise to a characteristic gait. Among the other lesions of the tertiary period are destructive ulcerations of the pharynx, soft palate, and septum; nodes on the clavicle, sternum, ulna, tibia, and the metacarpal and metatarsal bones, which may give rise to permanent thickening, or break down and cause ulcers; chronic dactylitis; chronic arthritis, resembling white swelling; and myositis, leading to contractures. If the late affection is severe, grave anæmia may be produced, and may terminate in cachexia and death.

The essential element in the etiology of yaws is a specific poison, which is conveyed into the system by inoculation chiefly by direct contact, as by kissing, sexual intercourse, etc.; sometimes apparently indirectly by flies. An abrasion of the tegumentary surface does not seem to be a necessary condition of the implantation of the poison. From the analogy of other inoculable diseases it is probable

that the cause of the affection is a specific micro-organism; but, so far, none has been discovered, and inoculations on animals have yielded only negative results. An attack of yaws usually confers immunity, but in some cases two or more attacks have occurred in the same individual. The lesions are not auto-inoculable. Among the predisposing causes of yaws are: (1) a tropical climate—it is commonest in damp, hilly, isolated regions; (2) tender age—it is most frequent in children under 10, and is hardly ever contracted after 35; (3) mode of life—it is commonest in the poor and in those living amidst insanitary surroundings; (4) race—it is most common in Africans: no race, however, is exempt. It is never congenital, and is probably hereditary only in the sense in which leprosy is so—that is, from the inheritance of conditions that favour its production, and from the opportunities of contagion presented by family life.

The pathology of yaws is that of dermatitis limited to the papillary layer, gradually penetrating into the corium, and involving the appendages of the skin. As already said, the exciting cause of the inflammatory process has not yet been discovered, but it is probably a micro-organism.

It has been contended by some authorities that yaws is a form of syphilis, modified by race and climate, but, though it presents many points of analogy with syphilis, I am inclined to agree with Rat and others, who have had extensive opportunities of studying the disease clinically,* that on the whole the balance of evidence is against its being syphilis. Further pathological research is required to settle the question.

The diagnosis of yaws is, as a rule, easy; the aspect of the lesions, and especially the raspberry-like

* See particularly Beaven Rake, "Post-Mortem Appearances in Cases of Yaws," *Brit. Journ. of Dermatology*, 1892, p. 376.

nodule, being characteristic. From syphilis it can be distinguished by the following features: It occurs chiefly in children; the primary lesion is, as a rule, extra-genital, never indurated, and never phagedænic; in the secondary stage the eruption is neither symmetrical nor polymorphous, and itching is a prominent symptom; finally, other characteristic marks of syphilis—iritis, sores on the tongue and anus, alopecia, etc.—are conspicuous by their absence. Yaws, when properly treated, is altogether a milder disease than syphilis. The stigmata of hereditary syphilis, notched teeth, scars about the mouth, etc., are also wanting.

As regards prognosis, the disease as a rule tends to spontaneous recovery unless the conditions of life of the patient be of the most unfavourable nature. Death may occur from neglect, but with proper treatment the disease can always be cured, and in most cases its manifestations can be limited to the skin and mucous membranes.

The treatment must consist in improving the constitution and hygienic surroundings of the patient. The inoculation sore is best treated by simple antiseptic applications. The fever must be dealt with on ordinary principles by quinine or the salicylates. Rat lays great stress on diaphoresis, and he gives ammonium carbonate with the double object of inducing sweating and promoting the alkalinity of the secretions. In the eruptive stage sulphur baths and calomel fumigations are useful. These should be followed by tonics, especially iron and cod-liver oil. In the tertiary stage mercury and iodide of potassium are the most efficient remedies. Rat is of opinion that in yaws, as in syphilis, the real curative agent is mercury, the iodides helping by promoting the absorption of inflammatory products. Mercury, however, should never be given in the early stage, as it aggravates the disease. Ulcers should be treated locally with black

wash, weak solutions of perchloride of mercury, or iodoform.

Glanders is a disease caused by a specific poison derived from the horse, which gives rise to lesions of the skin, mucous membranes and lymphatic glands, and to general constitutional infection usually ending in death. Glanders may run an acute or a subacute or chronic course, the former as a rule terminating fatally within six weeks, the latter persisting for months or even years, and sometimes ending in recovery. One of the earliest symptoms is a peculiar discharge from the nostrils, the mucous membrane of which is violently inflamed and ulcerated in the acuter cases; in the chronic form this discharge is often slight or altogether absent. It is not always easy to ascertain the site of inoculation. Generally, however, it is found that the poison has gained admission through a wound or abrasion on the face or the hands. The local inflammatory reaction around this point is usually severe, and ulceration results, the sore having a foul appearance with irregular edges. The neighbouring lymphatic vessels and glands are generally enlarged and inflamed. The skin lesions appear within three weeks or a month of the date of inoculation, as groups of red spots that soon develop into papules. These develop into vesicles or bullæ, which run together and form pustules that give rise to widespread ulceration covered with foul crusts or with black gangrenous shreds. Subcutaneous infiltrations form and break down into large ulcers. The enlargement of the lymphatic glands gives rise to nodules, not only in the neighbourhood of the site of inoculation, but elsewhere ("farcy buds"). These often suppurate and break down into ragged, sloughy ulcers. Almost the whole surface of the skin may be covered with lesions of these various types. The general symptoms of glanders vary according to the

acuteness of the process. They begin in from three or four days to as many weeks of the date of inoculation, and in their general character resemble rheumatic fever. In the acute and subacute cases the symptoms rapidly increase in intensity, and the

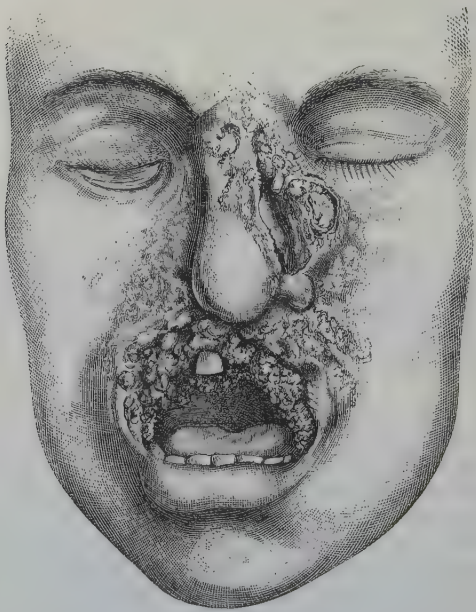

Fig. 9.—Chronic Glanders. (From the model of a case under the care of M. Besnier, in the Hôpital St. Louis, Paris.)

patient sinks into a typhoid condition, in which he speedily passes away. Death also occurs from pyæmia in a certain proportion of cases. In chronic glanders severe and extensive ulceration may take place. (Fig. 9, and Besnier's description, "International

Atlas of Rare Skin Diseases.") The etiology of glanders has been elucidated by Loeffler, Charrin, and others, who have proved that it is due to a bacillus somewhat resembling that of tubercle. The affection is almost always conveyed to the human subject from the horse in the discharge from the nostrils or from the ulcers. It is therefore found almost exclusively in persons whose occupation brings them much in contact with that animal. It has, however, been known to be communicated from man to man, and the lamented death of a distinguished Russian scientist not long ago, from glanders contracted in the course of certain laboratory experiments, may be taken as an example of its direct transmission by inoculation.

In a well-marked case the diagnosis can be made from the clinical phenomena alone. In doubtful cases the nature of the disease can be established by the reaction which takes place after the subcutaneous injection of mallein, a substance discovered by Hellman, and which it is sufficient to describe here as bearing the same relation to the virus of glanders that tuberculin does to that of tuberculosis.

In the acuter forms death invariably occurs within a few weeks; in the chronic variety recovery takes place in about 50 per cent.

The treatment of acute glanders is utterly unsatisfactory, no drug appearing to have any influence on the course of the disease. Chronic cases must be treated both constitutionally and locally on general principles. There appears to be reason to believe that in the injection of mallein a method of preventive inoculation has been discovered, but so far as I am aware no experiments in this direction have yet been made on the human subject.

CHAPTER XX.

DISEASES OF THE SKIN-GLANDS AND EPIDERMIC APPENDAGES (HAIR AND NAILS).

Diseases of the Glands.

The sebaceous and sudoriparous glands may be disordered in their functions by excess, diminution, or alteration in the character of their natural secretion; and they may become inflamed, either primarily or secondarily to the functional disorder, with the result that structural changes are often brought about in the integument and its appendages.

I. Diseases of the Sebaceous Glands.

Seborrhœa is a condition of over-activity of the sebaceous glands, leading to increase and alteration of their secretion. It occurs in two principal forms: (1) a dry form, in which the solid fatty constituents of the sebum are in excess, and the excreted material appears in the shape of dense scaly masses, generally more or less greasy both to sight and touch (*seborrhœa sicca*); (2) an oily form in which the fluid part of the secretion predominates, the discharge often being visible as oily drops at the mouths of the ducts, and making the skin look and feel as if it had been anointed with oil (*seborrhœa oleosa*). Both these forms are most common on the scalp. The condition most frequently observed is a slight greasy scurfiness, the thickness and colour of which vary greatly, according to the trouble that is taken to keep the parts clean. A peculiar salmon tint, which is frequently

seen in seborrhœic lesions, is probably, as suggested by Brooke, due to the superposition of the yellow colour of the greasy secretion and masses of cornified epithelium over the red of the subjacent hyperæmia. On the heads of infants seborrhœa may give rise to large dirty-yellowish greasy masses, generally thickest about the anterior fontanelle; the surface underneath these accumulations is usually pale, but sometimes it is inflamed. In adults such concretions are rare; but desquamation may be very abundant, the scales being sometimes distinctly greasy, sometimes dry and powdery. The condition is often accompanied by more or less itching, but not infrequently the only sign that reveals its presence to the patient is the shower of scales (dandruff) which falls from his head when he brushes his hair, or accumulates on the collar of his coat during the day. Dry seborrhœa is generally accompanied by loss of hair, which loses its gloss from the want of its natural lubricant, and withers from want of nourishment. The eyebrows, moustache, and beard are sometimes, though much less frequently than the scalp, the seat of dry seborrhœa.

On the face the oily form is the more common. The discharge dries and gives rise to yellowish or reddish-brown cakes of greasy scales that often have a hyperæmic base and a fringe of papules about the edge. Reddish blotches frequently remain for a considerable time after the seborrhœic process has come to an end. The affection shows a marked preference for the middle third of the face, especially the alæ of the nose and the naso-labial furrow, and it is often limited to that region. In elderly persons the condition in this situation sometimes appears to be connected with the development of epithelioma (Jamieson). The corners of the mouth and the ears are also frequent seats of oily seborrhœa. The dry form is chiefly seen in parts away from the middle line. It

occurs in the form of small scaly patches that are sometimes slightly hyperæmic.

Both forms of seborrhœa occur on the trunk and limbs. The lesions have the same general characters as those on the face. On the genitals and perinæum, and in the genito-crural fold, seborrhœa of the oily variety is common, but the distinctive characters of the lesions are in these regions often lost in the secondary erythematous and eczematoid conditions that are apt to become developed there. On the labia the irritation of the rancid, greasy masses not infrequently gives rise to ulceration, which might possibly be mistaken for soft chancre.

Seborrhœa almost invariably begins on the scalp, and in the large majority of cases it is confined to that part. From the scalp it spreads downwards to the face, the body, and the limbs, and it may be taken as a rule, to which the exceptions are fewer in proportion to the care used in investigation, that when seborrhœic lesions are found on any part of the body, clear evidence of seborrhœa, present or past, will be found on the scalp (Unna).

Among predisposing causes of seborrhœa are all conditions that give rise to constitutional weakness, notably syphilis and acute fevers. Jacques * maintains that the starting-point of the affection is always some form of gastro-intestinal disturbance, constipation being that most frequently met with. His theory is that, the chemical processes of digestion being disordered, toxins are produced which affect the sebaceous glands, either through the medium of the sympathetic or during their elimination through the skin. I agree with Brooke,† however, that the majority of

* "De l'état Séborréique de la Peau et de ses Rapports avec les Dermatoses." Paris, 1892.

† See his careful and suggestive paper, "The Relation of the Seborrhœic Processes to some other Affections of the Skin." *Brit. Journ. Derm.*, vol. i., 1888-89, p. 253.

persons who are the subjects of seborrhœa are in robust health. Indeed, the affection is so common that if constitutional weakness or derangement were a necessary condition of its production, the general standard of health in civilised countries must be assumed to be much lower than medical experience shows it to be.

That the severer forms of the disease are often associated with some disorder of the health proves nothing more than that, like other pathological processes, it flourishes most in a congenial soil. The determining factor in the production of seborrhœa is probably the irritation set up by a parasitic agent. It must be admitted that the reasons that can be given for this belief are at present almost wholly of an *à priori* character, but they are nevertheless of considerable weight. It is difficult to explain the occurrence of the affection in persons of all ages, classes, and modes of life, and in the most diverse circumstances of health and skin texture, without postulating an external cause working independently of such conditions. That the amplest opportunities for invasion by micro-organisms exist has been shown by Taenzer, who has isolated about eighty varieties of bacteria and fungi from the scales and secretion of eczema seborrhoicum.* The fact, established by clinical observation, that seborrhœa almost always spreads downwards from the head is probably to be accounted for by direct infection by the patient's fingers, and possibly also by falling scales. It is not unlikely that more than one micro-organism may take a part in the production of the affection, or further invasion may take place after the process has been started. This would help to explain the differences seen in the appearance and severity of the disease.

* *Monatsh. f. prakt. Derm.*, 1888, Bd. vii., No. 17, p. 818.

The pathology of seborrhœa is, therefore, "apparently a dermatitis caused by the presence of one or possibly several micro-organisms, and leading to a specific irritation of the fat-forming functions of the skin" (Brooke). Unna's view that the seat of the process is the sudoriparous and not the sebaceous apparatus has not found general acceptance among dermatologists, but it is not improbable that among the processes comprised under the name of seborrhœa there may be some in which the sweat glands are concerned as well as the sebaceous glands. Consistently with the opinion just referred to, Unna regards all the conditions that have been described in the present chapter not as seborrhœa proper, but as seborrhœic eczema. That seborrhœa prepares the soil for other diseases, and notably for eczema, has already been stated, and it may be admitted that it is often difficult to draw the line accurately between the two conditions, so as to be able to say just where seborrhœa ends and seborrhœic eczema begins. To call every case of scurfiness of the scalp, however, eczema (which is essentially a catarrhal process) seems to me either a pathological misconception or an abuse of terms.

The diagnosis of typical seborrhœa of the oily variety can hardly ever present any difficulty. The characteristic greasiness of the lesions, the marked preference for the scalp, the frequent limitation of the eruption thereto, and its downward spread, make up a clinical picture that is readily recognised in most cases. The dry form is often by no means easy to distinguish from psoriasis. The character of the scales differs considerably in well-marked cases, those of psoriasis being bright and silvery, while those of seborrhœa are less glistening, softer, and greasier. This alone, however, is not a safe guide. In such cases the starting-point of the eruption is the distinctive feature, seborrhœa beginning, as

already said, on the scalp, and tending to spread downwards, while psoriasis almost invariably commences on the elbows and knees and spreads upwards. When this mark fails us, a diagnosis may be almost impossible. It is important to bear in mind that both affections may coexist.

As seborrhœa is a local disease it can be cured by local measures, internal medication being necessary only when the general health is not all that could be desired. The scaly masses must be removed in the ordinary way, and the surface underneath soothed with emollient applications if inflamed. Parasiticides should next be applied, the strength being carefully adapted to the tolerance of the skin. Of these I trust most to sulphur in the ordinary run of cases. This may be applied as a lotion composed of ʒss to ʒj of precipitated sulphur in ʒviij of distilled water. This should be rubbed gently in (after being thoroughly shaken) with a little brush, care being taken to touch the hair as little as possible. The best time for the application is at bed-time, on account of the smell of the sulphur; in severe cases it should be made twice a day. When the mixture of the lotion and the products of secretion have formed a crust, this should be removed and the sulphur re-applied. The sulphur may also be applied in the form of a powder mixed with oxide of zinc, powdered talc, etc. Brocq speaks well of the following combination:—

℞	Salicylic acid...	grs. xxx
	Powdered hydrochlorate of pilocarpin	grs. xv
	Powdered sulphur	ʒiij
	Borate of soda	grs. lxxv
	Starch powder	ʒijss.
	Powdered talc	ʒij ʒjss.

M.

The amount of sulphur may be increased to ʒv, that of borate of soda to ʒijss, the powder forming the vehicle being proportionately increased; or the latter may be replaced by finely-powdered calcined magnesia, oxide of zinc, subnitrate of bismuth, and talc. After cleansing the head, if necessary, a layer of this powder is carefully applied to the scalp (*not* to the hair) every night. When the hair is dry, sulphur is best applied in the form of an ointment or pomade consisting of from 10 to 60 grains of precipitated sulphur to an ounce of lanolin, or a drachm of the sulphur to an ounce of pure vaseline with the addition of a little salicylic acid. Precipitated sulphur in cold cream in the proportion of 1 in 10 makes a good application. The following formula, proposed by Vidal, is useful :—

℞	Precipitated sulphur	ʒjss
	Cacao butter	ʒijss
	Castor oil	ʒivss
	Balsam of Peru, or tincture of benzoin to scent the pomade	q.s.

From half a drachm to a drachm of tincture of cantharides may be added to promote the growth of the hair. Mercurial applications may be used when sulphur is objected to, either in the form of a lotion containing 5 to 25 grains of corrosive sublimate in ʒiij to ʒvj of alcohol (90°C.), with distilled water or rose-water to make up to two pints; or of a pomade composed of yellow precipitate 7½ to 15 grains, pure vaseline or lanolin ʒv; or calomel 15 grains, tannin 30 to 45 grains, vaseline or lanolin ʒvij. Naphthol β is often of great service. The scalp should first be thoroughly cleansed with napththolated oil (1 per cent.) and naphthol soap, and afterwards washed for a week with an alcoholic solution of naphthol (1 to 2 per cent.). The same substance may be used in the form of a pomade, in the strength of 20 grains to

the ounce. Jamieson uses an ointment composed of tannic acid ʒj, pure glycerine q.s., vaseline ʒj, unguentum aq. rosæ ʒj. The use of this should be combined with daily washing with spiritus saponis alkalinus and warm water, the washing becoming less frequent as the seborrhœa improves. When only one washing a week is required the spiritus saponis alkalinus may, with advantage, be replaced by infusion of quillaya bark applied hot. The restoration of the hair may be promoted by the methods which will presently be described for the treatment of baldness.

Seborrhœa corporis.—Under this name Duhring and others have described what they consider to be a special form of seborrhœa. The eruption is most frequently seen on the front of the chest, over the sternum, and on the back between the shoulder-blades. The lesions appear first in the form of small red papules (hence the affection is sometimes called seborrhœa papulosa), which speedily coalesce into patches. These clear up in the centre while continuing to spread at the edge; circinate lesions are thus formed, the ring, however, being seldom complete. When one circle meets another, the parts touching each other, as usual, fade away, the remaining segments often forming wavy lines. The lesions are slightly raised, covered with greasy scales, and usually of a pinkish-salmon tint; if the scales are rubbed off an actively-growing patch, the underlying surface is seen to be bright red. The affection sometimes spreads extensively over the trunk by rapid advance of the edge of already existing lesions, and by the development of new foci among them. The only symptom is slight itching. The disease is almost invariably associated with seborrhœa of the scalp, and the lesions are sometimes actually continuous with those on the head. There can be little doubt that it

is identical with seborrhœa of the scalp, though possibly, as suggested by Brooke,* the more highly developed type of the lesions may be the result of the action of some more deeply-penetrating and aggressive micro-organism than is present in the ordinary forms of seborrhœa. No specific micro-organism has, however, yet been discovered.

There has been a great deal of discussion as to the true nature of the affection, which has been variously regarded as a form of lichen (L. circumscriptus, annulatus, gyratus, etc.), and an eczema as well as a seborrhœa. Payne, while admitting that the starting-point of each so-called papule is a sebaceous gland, thinks there is something more than over-secretion. In his opinion the bright red colour of the papules and margins of the patches indicates not only hyperæmia but dilatation and elongation of the capillary vessels. My own view is that the process is originally a seborrhœa, the hyperæmia being the response to irritation caused by the sweat and by the friction of the underclothing. As a matter of fact the affection is chiefly seen in persons who perspire freely, and especially in those who wear thick, coarse underclothing; hence it has been termed "flannel rash." If neglected it generally passes into eczema, and in many cases it is doubtless a seborrhœic eczema from the first.

The affection may sometimes be mistaken for tinea versicolor, but the absence of the fungus peculiar to the latter is decisive.

Treatment should be on the same general lines as that of seborrhœic eczema. The underclothing must be of unirritating texture, and should be frequently changed. A simple parasiticide application, after the parts have been thoroughly cleansed, will effect a cure.

* *Brit. Journ. of Dermatol.*, vol. i. p. 254.

Milium is a small, white, pearly mass, generally of the size of a millet-seed (hence the name), situated just under the epidermis, chiefly in situations where the skin is thin and there is little or no subcutaneous fat. Milia are seen most frequently on the face, especially on the cheeks, temples, eyelids, and forehead, sometimes on the penis and scrotum, and on the inner surface of the labia minora. They vary in number, and are generally scattered about without any sign of grouping, except occasionally, when they may be seen massed about the inner canthus. In the early stage of their development they are sometimes translucent, and after growing to a certain size they may remain stationary. They are hard and freely movable in the skin. On the eyelids and scrotum, however, they generally run together, forming flat masses which are sometimes so hard as to deserve the name of "cutaneous calculi." Crocker* describes a special form in which flat, pale-yellow accumulations are seen around the orifices of the glands, especially on the forehead and face, in the form of tiny discs, with a minute slightly depressed puncture in the centre. The condition suggests a fatty degeneration of the epithelium round a follicle—in fact, a true atheroma of the skin.

Milia are not infrequently seen in children at the breast, but most often in young adults. They sometimes follow acute forms of inflammation of the skin, as pemphigus and erysipelas; they occasionally form in the scars left by the lesions of syphilis and lupus.

Milia are generally considered to be plugs of sebaceous material, differing from comedones in being deeply seated in the acini of the glands and in having no opening towards the exterior. Robinson, however, suggests that there are two forms: one consisting of

* "Diseases of the Skin," second edition, p. 704.

misplaced embryonic tissue from a hair follicle or from the rete, containing no fatty epithelium, and having no opening; the other, a deep-seated comedo containing fatty epithelium and cholesterin. Milia are often associated with acne.

The little tumours can be turned out through a small incision. A little iodine may be applied to the sac to prevent recurrence.

Comedones are small masses of sebaceous matter plugging the ducts of sebaceous glands. They are most common in adolescents, but are sometimes seen in children. They show on the surface of the skin as pointed papules with a black top. The black colour is due partly to cornification of the epidermic cells, partly to dirt. They are most frequently seen on the face, especially about the nose, the cheeks, and the forehead, and on the back and chest. When very numerous they produce an appearance like grains of gunpowder embedded in the skin. When squeezed out they look not unlike small maggots. A parasite, the demodex or acarus folliculorum, can sometimes be found in comedones, but does not seem to have any causal relation therewith. It has, however, been suggested that comedones may sometimes be of bacterial origin. By themselves comedones are harmless, except for the disfigurement which they cause; but persons in whom they are numerous are generally the subjects of oily seborrhœa, and the inflammation of the plugs very frequently gives rise to acne.

The treatment is to squeeze them out either with the finger-nails, or with a special instrument. This little operation should be done gently, as comedones are apt to inflame if roughly handled. Extrusion of the plugs should be followed by washing with soft soap and hot water and vigorous friction, and the application of a paste composed of kaolin ʒss, glycerine ʒiij, and vinegar ʒij, or a weak sulphur

ointment. Internal treatment directed to the stimulation of the hepatic, digestive, and menstrual functions, according to indications, is often of service.

Grouped comedones have been described by Thin and others, which appear to be etiologically connected with dyspepsia, and to have no relation to acne. Their favourite situation is the "flush area" of the face, and they form symmetrical groups of black points smaller than ordinary comedones. Similar lesions have been seen on the trunk, but without grouping. These comedones have little tendency to inflame.

II. Diseases of the Sweat Glands.

The sweat glands may be the seat of functional disorder, the secretion being increased in amount, suppressed, or altered in character; or they may be obstructed, with or without inflammation.

Hyperidrosis is a condition in which the secretion of sweat is excessive either over the whole skin or in some particular region. With the so-called "critical sweating" of certain febrile conditions we have nothing to do here. Universal hyperidrosis may occur as a result of excessive heat, as in the *sudarium* of a Turkish bath; or of unwonted muscular exertion in a person "out of training"; or of violent mental emotion of a depressing kind ("cold sweat"); or as a form of rapid tissue waste in phthisis, leprosy, or other wasting diseases. When localised, hyperidrosis may be unilateral, or may be confined to particular regions, such as the palms and soles, and especially hot covered parts, such as the axillæ and genital regions, where the glands are larger. In the latter situations the secretion may not only be excessive, but may have an offensive smell (bromidrosis). In such situations intertrigo and eczematoid

eruptions are often induced by the irritation caused by the decomposed secretion. Occasionally hyperidrosis may be limited to the area of distribution of a particular nerve—*e.g.* the fifth. The symptom may be continuous, or it may be excited by mental emotion or by movement, as in mastication, etc. When the palms and soles are the seat of the affection, it is often symmetrical, and may be so severe as to lead to a thickened, sodden, macerated condition of the skin, making the use of the hand or foot painful and difficult. In some cases Jamieson * has noticed a peculiar delicate pink tint of the inner side of the palm and the ball of the little finger and thumb. Hyperidrosis may be persistent, or it may disappear with the temporary disorder of health on which it is dependent.

The affection is probably due to disordered innervation; it is sometimes congenital, and it may be hereditary. Physiological experiments have shown that sweating may follow paralysis of the sympathetic and stimulation of sensory nerves. Localised sweating is also sometimes associated with central nervous disease, or with injury to nervous cords. It is also occasionally of hysterical origin. A moist palm is a characteristic of tipplers. The fluid itself presents no abnormality. The prognosis depends on the nature of the cause producing the condition, and this often cannot be recognised. The treatment must be directed to the improvement of the general health by tonics, etc. Belladonna is sometimes useful; it may be given in the form of full doses of the tincture, or of hypodermic injections of atropia, $\frac{1}{150}$ of a grain, increased up to $\frac{1}{80}$. Ergot may also be of service. Crocker speaks well of sulphur, a level teaspoonful of the precipitated sulphur being given in milk twice a day. Diuretics, as suggested by Besnier, may be useful by

* "Diseases of the Skin," p. 75.

diverting the excess of fluid into another channel. Locally, the inunction of belladonna ointment or liniment is often beneficial, and faradisation may do good. When the soles of the feet are thickened and tender, a useful plan is to powder the stockings and boots with very fine boric acid every day, the boots being fitted with cork socks, which should be washed in boric acid lotion daily (Thin). Excessive sweating in the axilla or elsewhere may be checked for a time by pressing a very hot sponge to the part for a few minutes; boric acid powder or salicylic acid powder (3 per cent.) may then be dusted on.

Bromidrosis, or foul-smelling sweat, sometimes occurs in general conditions, such as rheumatic fever, uræmia, scurvy, etc. It is only, however, as an idiopathic condition that it concerns us here. It may or may not be associated with excessive secretion. Though occasionally general, it is most commonly localised, the parts most frequently affected being the feet, where the decomposition of the sweat gives rise to a rank and sickening stench. The soles of the feet become sodden and macerated, and so tender that walking is sometimes impossible; in severe cases inflammation and exfoliation of the skin often occur. In other parts of the body—such as the axillæ and perinæum—the smell is less rancid and more fusty in character.

Bromidrosis of the feet is usually observed in young persons whose occupation involves a great deal of standing, especially domestic servants and soldiers. It is often associated with flat-foot, and is not infrequent in those who wear waterproof coverings for the feet, especially when this is combined with deficient cleanliness. The sweat has no smell when first secreted, and the fœtor is probably due to the presence of a special micro-organism — the bacterium

fœtidum (Thin). The treatment must consist in the most scrupulous cleanliness, the feet being frequently washed, and the stockings being changed before the sweat with which they are soaked has had time to decompose. The method of disinfection with boric acid, already described, should also be employed. The plan adopted in the German army of rubbing the feet with mutton suet mixed with 2 per cent. of salicylic acid, is very useful both in correcting fœtor and in preventing tenderness. The occasional application of a 5 to 10 per cent. solution of chromic acid is also very beneficial.

Chromidrosis.—Under certain very rare conditions the sweat and the sebaceous secretion may be coloured, the tint generally being some shade of blue, but red, green, yellow, violet, and even black sweating has been observed. The phenomenon is generally localised and occurs symmetrically. A favourite situation is the eyelids; the cheeks, forehead, and side of the nose coming next in frequency. In rare cases the whole of the face, the chest, the belly, the backs of the hands and bends of the limbs, especially the axillæ and groins, are the seat of the affection. The amount of pigmentation varies at different times in the same case, being generally worst in women just before a menstrual period. Constipation or some other disorder of the health is generally associated with the condition. In the large majority of cases the patients are women—mostly young and unmarried. The neurotic temperament is a predisposing cause, the determining factor of the attack often seeming to be mental shock or emotion.

The disease is in all probability primarily a neurosis. It has been suggested that the coloration is due to the presence of indican, which becomes oxidised by exposure to the air or by some ferment into indigo. The question, however, is still involved in

obscurity. In making a diagnosis our first care in such cases must be to exclude fraud. So suggestive of imposture, indeed, is the whole thing that some have expressed their disbelief in the genuineness of the phenomenon. Renewal of the pigmentation has, however, sometimes been observed in circumstances that appear to preclude the possibility of deception. The prognosis is always good as regards the ultimate disappearance of the coloration, but the condition may persist for years. Treatment must be directed to the improvement of the general health; local medication is useless.

Coloured sweating has also been observed as the result of the ingestion of copper (green sweat) or iron (blue sweat); or associated with the presence of certain bacteria, as in the red sweat not infrequently seen in the axillæ and genital regions, and sometimes in yellow and blue sweat. In such cases of red sweat the microbes attach themselves to the hair-shaft and worm themselves into its substance. The condition is most common in persons in a weak state of health and whose hair is fair or reddish in hue. The affection is not strictly a form of chromidrosis, the sweat itself not being coloured at the time of its excretion, but acting as a solvent for the colouring matter in the masses attached to the hair. The fungus has been cultivated by Kneas.* Examination of pure cultures showed the cocci frequently arranged in pairs and tetrads, like the micrococcus tetragonus.

Bloody sweat may also occur as a result of the extravasation of blood into the coils and ducts of sweat glands. This condition may in very rare cases follow great mental emotion in persons of excitable temperament, or it may be a form of vicarious menstruation. It is sometimes also seen in new-born babes, and in

* Hartzell, *Univ. Med Mag.* (Philadelphia), July, 1893.

such a case has been known to prove fatal. It is usually localised, the parts affected being the face, the hands, the feet, the navel, etc. The treatment can only be directed to the removal of the cause, which in adults is almost invariably the hysterical temperament.

Phosphorescent sweating has been seen in certain rare cases after eating phosphorescent fish, or even as an idiopathic phenomenon. A case in which the body-linen became luminous after extraordinary exertion is on record.* The phosphorescence is believed to be due to bacilli.

Uridrosis is due to the presence of urea and other urinary constituents in the sweat. Urea is normally present in minute quantities in that secretion, but under certain conditions, as in cholera, uræmia, etc., the amount may be so much increased that the skin may be coated with white crystals, as if it were covered with hoar-frost. The sweat has a urinous smell.

Anidrosis, or diminution of the sweat secretion, may be associated with certain general conditions, such as diabetes, fever, etc.; or it may be due to a congenital anomaly in the structure of the skin, as in ichthyosis, or to a diseased condition of the skin, as in psoriasis, eczema, or sclerodermia; or it may be the result of disordered innervation, as in anæsthetic leprosy, or of malnutrition. It may also be dependent on a purely mechanical cause, such as obstruction of the sweat ducts by epithelial *débris*, owing to imperfect washing. The secretion may be merely diminished or may be totally suppressed, and the whole skin or only some particular area may be affected. Anidrosis rarely occurs as an independent affection. The only symptom besides the disagreeable

* Carpenter's "Physiology," 7th ed., 1869, p. 500.

dryness of the skin is a feeling of fulness and tension on exposure to heat. In cases due to congenital anomaly treatment is useless; in other cases general invigorating treatment and stimulation of the skin by massage and hot baths may be useful.

Sudamina or **miliaria** are small vesicles, looking like drops of dew on the skin (Jamieson). They are due to obstruction of the sweat ducts, with or without inflammation. The fluid contained in the vesicles is simply the imprisoned sweat, which, being prevented from issuing by the natural orifice, is effused under the horny layer. The obstruction is generally caused by an epithelial plug, formed while the functional activity of the sweat gland is suspended, as in fevers. Sometimes sudamina occur on a dry and hot skin where perspiration, so far from being excessive, has been deficient. The parts chiefly affected are the chest and the belly, but the vesicles may form wherever there are sweat ducts to be blocked up. They are as a rule set close together, but are not often confluent. They undergo no change, and disappear completely in a few days. Sometimes they come out in successive crops. In some cases an inflammatory process, which may be primary or secondary, develops in and about the glands. The lesions in this case are bright red papules (miliaria rubra), the size of a pin's point, which are sometimes vesicular or pustular (miliaria alba) on the top. The lesions are discrete, though thickly aggregated, and the fluid contained in the vesicles is serous, being the result of inflammatory exudation. The vesicles and pustules do not burst spontaneously, but dry up in a few days, forming small scales, which soon separate. The individual lesions are very short-lived, but the affection may be kept up for some time by successive crops of eruption. More or less itching is generally complained of. The appearance of the lesions is so characteristic that there

can hardly ever be any doubt as to the diagnosis. Miliaria rubra may sometimes resemble the vesicular stage of eczema, but there is no formation of patches and no "weeping"; the affection, moreover, is very transitory. A sweat rash in a child may suggest the exanthem of an acute specific fever, but the absence of constitutional disturbance will generally prevent such a mistake. It is important, however, to remember that sudamina may be associated with a scarlatinal or other febrile rash; they are especially common in typhoid. Miliaria almost always yield readily to treatment, but relapse is common. It is only when the retention of the secretion is complicated by inflammation that treatment is required. Dusting with a little protective powder and the application of a cooling ointment is all that is necessary.

The so-called **strophulus,** or "red gum," or "lichen infantum," is a form of miliaria rubra due to too warm clothing. The remedy is obvious.

Miliaria papulosa, or "prickly heat," is a form of miliaria rubra, sometimes called lichen tropicus on account of the papular lesions by which it is characterised. The special pathological feature of prickly heat is that the inflammation in the sweat gland is primary, and is the cause of the obstruction of the duct. The lesions are tiny acuminate papules, bright red in colour and thickly clustered together, but not confluent, with a few vesicles and pustules scattered about between them. The eruption is preceded by profuse sweating. The lesions come out suddenly and give rise to pricking and tingling of extreme intensity. The affection shows a preference for covered parts (trunk, limbs, upper part of forehead), and it usually extends over large areas. Prickly heat is most common in the tropics, but it is not unknown in England, especially in persons who have had it before. Fat people, and

those who perspire freely, are most liable to it; and the irritation of clothing, especially flannel, sometimes appears to be a determining factor. One attack predisposes to another. Prickly heat in some degree resembles papular eczema, but the circumstances of its occurrence and its sudden disappearance will serve to distinguish it. By way of treatment, saline diuretics, such as the acetate and nitrate of potash, are very useful. Locally, a soothing or evaporating lotion or a cooling ointment will give relief. Alkaline or bran baths are also beneficial. The diet should be non-stimulating and alcohol should be taken only in the greatest moderation. Any cause of irritation in the clothing should be removed. Care should be taken to prevent chill and for this reason woollen underclothing should be worn.

A peculiar form of miliary eruption on the face has been described by G. T. Jackson, Rosenthal, and Crocker,* under the name of "dysidrosis" of the face. The lesions consisted of small vesicles resembling sudamina, but grouped so as to form patches, which persisted without any apparent tendency to spontaneous recovery. The lesions gave rise to itching, but there was no sign of inflammation. The condition appeared in Crocker's case to be associated with dyspepsia, the lesions being more prominent after meals

III. Diseases of the Hair.

Diseases of the hair depend on pathological changes in the follicle. These consist of inflammation in and around the hair sac, and trophic changes leading on the one hand to overgrowth and on the other to deficiency of pigment, atrophy, and total

* "Diseases of the Skin," second edition, London, 1893, p. 687.

destruction of the hair. Concretions of various kinds may also form on the hair-shaft. Besides these conditions there are the parasitic diseases, such as ringworm, favus, etc.

The inflammatory processes which most frequently attack the hair follicle have already been described under the head of "sycosis," and incidentally with pityriasis rubra pilaris, lichen, and other conditions. A special form of chronic folliculitis of the scalp (**folliculitis decalvans**) has been described by Quinquaud and others, which leads to cicatricial baldness. The affection is at first sight somewhat like alopecia areata, but at the edge of the bare patches a small red papule or patch of erythema can be seen surrounding each individual hair follicle. I have had two well-marked cases under my care, one in a young woman, the other in a man. The microscopic appearances are those of perifolliculitis, and pus-cocci are present. Quinquaud also found other micro-organisms which he thinks peculiar to this condition. The process is extremely chronic, and treatment has little effect. The indications are to check the spread of the disease and promote the growth of the hair. For this purpose, parasiticides followed by stimulant applications should be tried. Pringle has found epilation successful.

Another inflammatory process, affecting the scalp and ending in atrophy of the hair follicles, is described by Kaposi under the name of **dermatitis papillaris capillitii.** It commences at the edge of the scalp on the back of the neck, and spreads upwards towards the crown of the head. The initial lesions are small papules, which soon coalesce into large warty-looking vegetations in the occipital region. They bleed easily, and an offensive discharge oozes out between the papillæ, while abscesses form beneath and undermine them. These masses are composed of granulation

tissue. After a time they shrink and become converted into connective tissue. The process causes baldness in some places from atrophy of the hair follicles, while in others a kind of cheloid, with tufts of hair projecting through the hypertrophied scar tissue, is produced (acne cheloid).

Overgrowth of hair may occur either as an exaggeration of the natural growth in hairy parts, or as an abnormal growth in hairless regions, as on the upper lip or the chin in women; or it may be universal. Some anomaly of dentition is often associated with general hirsuties. Dark-complexioned persons are more liable to overgrowth of hair than fair persons. The condition is not infrequently hereditary; it may be congenital, or may become developed at any period of life, being most common in women at and after the climacteric. Hirsuties is a frequent accompaniment of insanity in women, and it is sometimes associated with disorder of the menstrual function, and with barrenness. Sometimes the condition follows a severe illness. Overgrowth of hair may also be the result of local irritation, as by blistering or stimulating applications. The condition is, as a rule, persistent unless it can be got rid of by treatment. It is only in the slighter cases, however, that this offers any chance of success. The only effective method is electrolysis, but this is applicable only in a very small proportion of cases. Electrolysis should be used only when the superfluous hairs are thick, dark, and well-defined; the method is unsuitable in cases where there is a large undergrowth of finer hair which cannot be dealt with. Each hair bulb should be destroyed separately with a needle connected with the negative pole of a galvanic battery passed down to the bottom of the follicle, in a direction parallel to the hair-shaft. The circuit is completed by the patient's grasping the positive pole.

When bubbles of froth are seen the needle is withdrawn and the hair extracted with forceps; if it is not perfectly loose the needle must be re-introduced. Two or three dozen hairs may thus be destroyed at a sitting. The operation is not very painful, and the patient is usually so anxious to be rid of the deformity that she will bear the discomfort without flinching. The operation leaves a small red papule, which in time gives place to a macule so small as to be invisible except on close inspection. If the procedure is followed by any discomfort, the part should be bathed with warm water, and a soothing lotion applied. The operation sometimes requires to be repeated, in consequence either of the follicle having been imperfectly destroyed in the first instance, or of the fine downy hairs becoming coarser when the others have been got rid of. The great source of failure is the uncertainty of the direction taken by the hair within the follicle, and the consequent difficulty of reaching the bulb with the electrode. To meet this difficulty Stern * suggests that the hair should first be pulled out with forceps, and the needle then at once passed into the follicle while it is still wide open. The method undoubtedly requires skill on the part of the operator and perseverance on that of the patient, but when properly used it gives satisfactory results in a limited number of cases. When the growth is too abundant for electrolysis to be practicable, shaving is the only alternative. Pulling out the hair with tweezers only makes it grow more vigorously. Depilatories hardly ever do permanent good and often do harm. As some uterine affection or other derangement of the health is generally associated with the condition, the local procedure should, when necessary, be complemented by appropriate treatment of the visceral disorder.

* *Therapeutische Monatshefte*, August, 1893.

Atrophic changes in the hair may be the result of senile decay, or of some constitutional affection, such as an acute fever, phthisis, diabetes, etc. They may also occur, independently of any systemic cause, as the result of local processes. The hairs become dry, lose their natural glossiness, and split or break. When the hair is long it often splits at the end; in some cases the splitting appears to take place from the root, so that at first sight there would appear to be several hairs emerging from one follicle. Associated with this condition pustular folliculitis is sometimes observed, but it is not clear whether this is a cause or a consequence of the affection of the hair.

Fig. 10.—Trichorrhexis Nodosa.

Trichorrhexis nodosa is a nodular condition of the hair which was first described by Erasmus Wilson, and afterwards more fully by Beigel. It occurs chiefly in men. The beard, whiskers, and moustache are more liable to attack than the hair of the head; but the hair of any part of the body may be affected. Little bead-like swellings of a whitish appearance, like "nits," are seen at irregular intervals along the hair-shaft, and at these spots the cortex gives way under the slightest strain, the medulla remaining unbroken (Fig. 10). Between the nodes the hair

is normal. The condition is considered by P. Raymond* to be of parasitic origin, the cortex being eroded by a diplococcus somewhat larger than staphylococcus pyogenes. Raymond believes the affection to be communicable, a fact which may account for its apparent hereditary transmission in certain cases. The treatment consists in strengthening the hair by frequent shaving. In view of the possible parasitic origin of the affection, epilation of the diseased hairs, followed by the application of an antiseptic lotion, would appear to offer the best chance of success. The general health must also be improved by appropriate measures.

A curious condition of the hair (**monilethrix** or beaded hair) was first described by Walter Smith,† in which the hair-shaft all along its length presents spindle-shaped enlargements at intervals, connected by constricted portions; the latter are almost devoid of colour, the pigment seeming to be massed in the nodes. The hairs break at the narrow parts. The condition affects the hair all over the body. It generally begins soon after birth, and is occasionally hereditary; it has also been known to come on after nervous shock (Unna). It appears to me to be due to a succession of atrophic changes at periodic intervals, the apparently swollen parts of the hair representing the normal shaft, and the constrictions the atrophied portions. Some consider the affection to be of tropho-neurotic origin.‡

Greyness of the hair is a senile change, but may occur quite early in life, as a result of disease, nervous shock, or long-continued nervous exhaustion.

* *Ann. de Derm. et de Syph.*, tome ii., 1891.

† *Brit. Med. Journ.*, 1879, vol. ii. p. 291.

‡ For further information on monilethrix see a paper by Wallace Beatty and Alfred Scott (*Brit. Journ. of Dermatology*, 1892, p. 171).

It is sometimes congenital and occasionally hereditary. There is a family in the south of France both the male and female members of which have had for three hundred years a natural badge in the shape of a lock of white hair, generally situated over the forehead. The hair has been known suddenly to become grey or even white under the influence of terror or grief. In neurotic subjects greyness may be temporary, coming on with an attack of neuralgia and disappearing when the pain subsides. The hair generally remains discoloured, but occasionally the pigment may be restored if the cause that produced the greyness is removed. Treatment can be of use only when the condition has followed some exceptional nervous strain in a person not beyond middle age. Even then, however, the prospect of a cure is extremely doubtful. Nerve-tonics may possibly be of service, and jaborandi given internally in the form of tincture (ɱxv), or hypodermically as hydrochlorate of pilocarpin (gr. $\frac{1}{10}$ to $\frac{1}{5}$), may be useful.

Some cases are on record of the natural colour of the hair changing from fair, for instance, to black, under the influence of pilocarpin injections used for some other purpose. The hair has also been known to change colour after a severe illness. Artificial discoloration may be produced without the application of a dye. Workmen who have to handle aniline dyes have often deep red-brown hair; the hair of copper-smelters often turns green, that of workers in cobalt mines blue, etc.

Alopecia, or baldness, is usually a senile change, but may occur quite early in life or may be congenital. It is comparatively rare in women. The tendency to baldness is often hereditary. It is a frequent symptom of secondary syphilis, and it sometimes occurs in the later stages of that disease as the result of

ulcerative processes. Early baldness may also be a consequence of any fever or other general disease that interferes with nutrition. Apart from any such cause, however, it may be produced by a complex set of factors, such as (1) the shape of the skull, the sides being so prominent that the temporal arteries are easily compressed by the hat; (2) venous stagnation owing to the same cause; (3) profuse perspiration with decomposition of the secretion, and afterwards invasion by bacteria, leading to rotting of the hair; (4) chronic dry seborrhœa of the scalp. These factors may be combined in varying degrees. The great cause of premature baldness is, however, the one last named, its effect being, no doubt, largely aided by the wearing of hard unventilated hats. The treatment of confirmed baldness is not very satisfactory. If the falling out of the hair has followed an acute illness or is a symptom of syphilis, the hair will generally grow again as the patient recovers his health. Local stimulation will often hasten the process. In elderly people no treatment will restore hair lost through natural decay, but in younger persons the development of commencing baldness may sometimes be checked and the growth of new hair promoted by local treatment directed to the prevention of dryness, the cure of seborrhœa, and the improvement of the nutrition of the hair roots. For the former purpose the application of fatty or oily matter, and especially of lanolin diluted with vaseline and with some weak antiseptic added, is very useful. For seborrhœa the treatment already recommended for that condition should be adopted. The nutrition of the hair-bulbs may be improved by stimulant lotions which redden the scalp and bring a larger amount of blood to the affected parts. For this purpose the following formula is of use :—

℞ Borate of soda ... ... ʒx
Salicylic acid ... ... ʒij
Tincture of cantharides ... ... ʒvj
Bay rum ... ... ʒxxv
Rose-water ... ... ʒx
Boiling water enough to make a pint and a half.

The borax and salicylic acid should first be dissolved in the boiling water; the bay rum, etc., should then be added to the solution, which should be filtered before use. Hebra's formula

℞ Tr. macidis ... ... grms. 5
Ol. olivæ ... ... „ 50

may sometimes be useful. I have sometimes had good results from the following:

℞ Chloral hydrat. ... ... ʒiij
Sp. vini. rect. ... ... ʒss
Glycerini ... ... ʒij
Aq. ros. ... ... ad ʒvj

This should be sharply rubbed in, night and morning. Besnier recommends the application of equal parts of acetic acid and chloroform; this should be used with caution or it may cause irritation. The following is also sometimes of service:—

℞ Acid. salicyl. ... ... grs. v
Sulph. præcipitat. ... ... grs. xv
Naphthol β ... ... grs. x
Vaselini ... ... ʒj

As restoration of the hair has been observed to follow the injection of thyroid extract and feeding with thyroid in myxœdema, it is possible that the administration of that substance in some form might be useful in alopecia.

Alopecia areata is a peculiar form of baldness generally occurring in patches, which may gradually spread over a considerable area (Plate I. Fig. 2).

The affection is characterised by suddenness of onset, and in severe cases by the rapidity of its extension. It generally begins on the scalp, and is often limited to that region; it may, however, be universal, the hair falling out all over the body and leaving the patient not only with an absolutely bald head, but without eyebrows, eye-lashes, whiskers, beard, moustache, axillary or pubic hairs. I have known the entire hair of the body thus shed within forty-eight hours. In such cases the nails both of the fingers and toes often fall out with the hair. The usual course of events is somewhat as follows:—One or more small patches suddenly make their appearance on a scalp otherwise perfectly healthy. These initial patches are most commonly situated on one side or other of the occiput, over the ridge marking the point of insertion of the trapezius muscle; on one side or other of the vertex; and above and behind the ears. In the early stage the skin of the patch is somewhat red, but later it acquires the whiteness and smoothness of a billiard ball. Sensation is unaffected, but the skin on the patch reacts decidedly less to stimulant substances than the rest of the scalp. The smooth bald patches are sharply defined from the neighbouring healthy parts, but the hairs at the edge are looser than normal, and, on careful search, in some cases short hairs can be found that show distinct signs of atrophy close to the root, giving them the shape of a point of exclamation (!). Sometimes the patches are small, round, and distinctly depressed below the level of the surrounding skin. Generally they continue spreading for a time, and may coalesce with others, forming denuded areas of irregular outline. When the affection has lasted some time the skin of the patches is thinned and adherent to the underlying tissues, so that it cannot be pinched up or moved upon them. Restoration of the hair takes place,

sooner or later, in most cases, but the process is, as a rule, a long one, and several successive crops of downy hair may grow and wither away again before the patches are definitively covered over. Even after complete restoration, however, relapse is not uncommon. In some cases the baldness is permanent, but it is difficult to give a definite prognosis on this point, as complete restoration of the hair has been known to take place after ten and, in one case, sixteen years.* As long as there is no great thinning or loss of mobility in the affected skin there is a fair prospect that the hair will be restored within a year. The chances of early recovery diminish in proportion to the shrinkage of the skin and the age of the patient.

The etiology of alopecia areata is somewhat obscure. There are two theories as to its production, some considering it to be a neurosis, others inclining to the belief that it is due to micro-organisms. That it is at least sometimes neurotic in origin appears to me to be proved by its not infrequent occurrence as an immediate sequel of mental shock, such as fright; it also often seems to be directly connected with prolonged mental distress or worry. I have known total alopecia occur in a lady within forty-eight hours of receiving news of the death of her son. Stepp has recorded a case in which complete loss of the scalp hairs followed the shock of a railway accident. It is generally stated to be more common in the male than in the female sex, but Crocker, on the ground of his own experience, denies this, though even the figures which he gives show a preponderance of males. It is most common in young persons, and is rare after forty. Alopecia areata occasionally follows the track of a particular nerve, such as the supra-orbital, in its distribution, and it has been

* Michelson quoted by Jamieson, "Diseases of the Skin," Edinburgh, 1888, p. 406.

known to follow injury to the sympathetic nerve. Leloir has examined histologically cutaneous nerves from the affected surface, and in one case they presented all the signs of atrophic neuritis. Cases confirming the marked influence of nerve lesions in producing alopecia areata have been published by Schütz.* A fact in some degree confirmatory of the neurotic origin of alopecia areata is its occasional association with leucodermia. The parasitic theory at present rests more on clinical than on pathological evidence. Some years ago Kazanlï† reported the discovery of a microbe which he believed to be specific, and micrococci have been found by Robinson and others in the root-sheaths of the hair around the affected areas, and also in the lymph-spaces of the corium and subpapillary layer, but the few investigators who have seen these micro-organisms are not agreed as to their characters, and even if their existence be admitted, there is no clear proof of their causal relation to the process. There is some reason to believe that the affection may, in certain circumstances, be transmitted from one patient to another, and in France epidemics of *pelade* are not infrequent in schools and in regiments; the medium of conveyance in the latter case being thought to be the common shears by which the hair is trimmed to the regulation length. Definite proof of contagion is still wanting, however, and it is certain that even if the affection be contagious, such a combination of conditions must be required for it to take place that transmission is altogether exceptional.

The treatment should be directed to the improvement of the general health, if there be any need for it, by tonics, especially iron, by sea-bathing, and other invigorating measures, such as massage and electricity.

* *Münch. med. Wochenschr.*, No. 8, 1889.
† *Brit. Journ. of Dermatology*, 1888-89, p. 132.

In neurotic cases Ohmann-Dumesnil * gives the following pill thrice daily :

℞ Strych. sulphat. ... ... gr. $\frac{1}{60}$
Ferr. redact. ... ... gr. j
Quinin. bisulphat. ... ... gr. j

Instead of this he sometimes gives compound syrup of hypophosphites with gr. $\frac{1}{60}$ of sulphate of strychnine in each dose, four times a day. The subcutaneous injection of hydrochlorate of pilocarpin ($\frac{1}{30}$ of a grain) has proved successful in my hands in a limited number of cases. Locally, strong stimulation is indicated; for this purpose chrysarobin ʒj to ℥j of lard or ʒss to ℥j of lanolin and oil should be rubbed into the patches night and morning with proper precaution. The most usually accepted treatment is blistering, for which purpose acetum cantharidis may be used; it should be applied to the patches and the scalp around them; the same effect may be produced by croton oil, or oil of mustard, in the following formula :—

℞ Ol. sinapis ... ... ʒj
Ol. ricini ... ... ʒij
Sp. rosmarini ... ... ad ℥iv
M.

This should be painted on, not rubbed in, once or twice a day. Jamieson speaks highly of the following formula of Erasmus Wilson :

℞ Liq. ammon. fort. ... ... ℥ss
Chloroformi ... ... ℥ss
Ol. sesami ... ... ℥ss
Ol. limonis ... ... ʒss
Sp. rosmarini ... ... ad ℥iv
M.

This is to be rubbed gently into the bald part, at first once, afterwards twice a day; in the later stages

* *New Orleans Medical and Surgical Journal*, July, 1892.

faradism is sometimes useful. All these various remedies act in the same way, that is to say, by increasing the flow of blood to the part and thereby improving the nutrition of the hair follicles.

Ohmann-Dumesnil treats the parasitic form of alopecia areata with two applications, a weak one for the whole scalp, in order to prevent new infection, and a stronger one to the affected areas for the purpose of destroying the parasite. The hair (in male patients) is clipped close to the scalp, and both preparations are applied twice daily. The weaker application is a three per cent. solution of creolin; the stronger is composed as follows:—

℞ Hydrarg. bichloridi ... ... gr. j
Lanolini ... ... ʒj

The affected parts are first washed with soft soap, which is left on for five minutes. Ohmann-Dumesnil claims to have obtained satisfactory results by this method. Bulkley applies strong liquid carbolic acid once every two weeks to the affected areas, the extent of surface treated at one time not exceeding two square inches. The method is painful, but is said to be efficacious. It must be remembered that whatever remedy may be employed, spontaneous cure often takes place, especially in young people, so that too much credit must not be given to drugs.

Certain *concretions* are sometimes seen on the hairs. The most common of these is **lepothrix**, which is confined to the hairs of the axillæ and the scrotum. To the naked eye the hairs are dull and lustreless with ragged borders; they are so brittle that they break on the least traction. On microscopic examination the affected hair is seen to be surrounded more or less completely with irregular masses of concretion, in which some of the fibres of the cortex are embedded. In the axilla the concretion is often red in

colour, owing to the presence of the micrococcus which produces red sweat in that situation; as this red colour is not seen in the scrotal hairs, the association in the axillæ is probably accidental. Glasgow Patteson has discovered a short bacillus which penetrates under the cortical scales and is constantly present in lepothrix. The condition is tolerably common and gives rise to no symptoms. The application of parasiticide agents would probably be the most hopeful line of treatment.

Piedra is an affection seen almost exclusively among the natives, especially the women, in the district of Cauca, in Colombia (South America). In men the beard sometimes suffers. The concretions are small, black, gritty particles, which cling to the shaft of the hair. They are so hard that they rattle when the hair is combed. They consist of closely aggregated pigmented spore-like bodies, due to a fungus. The affected hair has an acid smell, and the condition is believed by some to be connected with the use of a peculiar oily substance for lubricating purposes.* The treatment should evidently be antiparasitic.

Tinea nodosa † is a nodular concretion, also consisting of fungus spores, sometimes affecting the hair of the whiskers, beard, or moustache. It weakens the hair, which splits and breaks. Clipping the hairs short and the use of antiparasitic remedies are the methods indicated.

IV. Diseases of the Nails.

The nails are often involved in processes—such as eczema, psoriasis, lichen ruber planus, favus, ringworm

* See a paper by the author in Path. Trans., vol. xxx., 1879, p. 441, and Juhel Rénoy (*Ann. de Derm. et de Syph.*, vol. ix., 1888, p. 777; and vol. i., 1890, p. 776).

† This affection was first described and named by Cheadle and the author (*Lancet*, vol. i., 1879, p. 190).

—which affect the integument generally; the lesions of these epidermic appendages in such cases have been described with the diseases in question. The nails may also be the seat of trophic changes which may be due to senile atrophy or to acute illness, or may occur without any apparent cause. Sometimes the longitudinal striæ are exaggerated; sometimes transverse furrows remain as records of a fever or other severe illness; sometimes white spots become developed, owing to the presence of air between the lamellæ. Shedding of the nails may occur, as already said, as a part of the process of alopecia areata, or in association with diabetes, syphilis, locomotor ataxy, and other nervous disorders. Pigmentary and degenerative changes may also occur in the nails as the result of occupation, as in dyers, washerwomen, jewellers, and others.

Apart from these various causes, the matrix of the nails may be the seat of pathological processes similar to those affecting other tissues. Inflammation (**onychia**) may occur; this may be idiopathic or may follow injury, or may be a manifestation of syphilis or the result of direct tubercular infection (*onychia maligna*). In the latter case the condition is frequently associated with scrofulous lesions in the eyelid and elsewhere. If the process is acute, there is great pain and redness; suppuration takes place beneath the nail, which is discoloured and thickened, and is finally pushed out of its bed and thrown off, leaving an unhealthy sore. This may heal, or the inflammation may involve the lymphatics, and give rise to *paronychia* or whitlow. The treatment of onychia is to remove the nail, if it has not already been thrown off, and apply antiseptic dressings. The general health may also require attention.

A special variety of paronychia is caused by **ingrowing toe-nail**, a condition that generally occurs

as the result of pressure by tight boots, or of irritation by the edge of a badly-cut nail. Ulceration takes place on one side of the nail (generally that of the big toe), which becomes embedded in inflammatory tissue, so that walking is rendered impossible. The treatment in bad cases is to divide the nail with scissors, and remove the two halves separately. As this operation is extremely painful, an anæsthetic will be necessary. The bare surface must then be dressed antiseptically. In less severe cases the granulations may be destroyed with acid nitrate of mercury, the nail scraped thin in the middle, and trimmed smooth so that there is no sharp edge to irritate the tissues, and an antiseptic dressing applied.

Hypertrophy of the nails (**onychauxis**) sometimes occurs, the whole nail becoming thickened, and the free end growing out to a great length and sometimes becoming twisted like a ram's horn (**onychogryphosis**). The condition is more common on the toes than on the fingers. The treatment is removal of the superfluous part after soaking in hot water.

CHAPTER XXI.

NEW GROWTHS.

As our knowledge of the etiology of disease extends, so will the group of new growths diminish, and already a question is raised as to whether some of the new growths may not be of parasitic origin. Until this question is finally settled there must always be a group of affections of doubtful causation which, from the presence of more or less circumscribed tumours, may be classed as new growths. The term must, however, be taken strictly in its anatomical sense, and not as meaning something *sui generis*. Neoplasms may be provisionally classified into (1) growths affecting connective and other tissues of mesoblastic origin, and (2) growths affecting epithelial tissues either alone or in addition to the connective tissues. The former category includes :—

1. Cheloid and fibroma.
2. Lipoma.
3. Nævus pigmentosus (mole).
4. Nævus vascularis (capillary or venous).
5. Telangiectasis.
6. Lymphangioma.
7. Myoma.
8. Mycosis fungoides.
9. Sarcoma.

The latter class embraces the following :—

1. Papilloma, including warts, horns, and corns.
2. Adenoma.
3. Molluscum contagiosum.
4. Darier's disease, or acne cornea.
5. Rodent ulcer.
6. Paget's disease.
7. Cancer.

As a scientific classification of new growths is at present impossible, it has been thought best here to

adopt the clinical division into tumours of benign and malignant nature, which has at least the advantage of being practically convenient.

I. Benign New Growths.

Under this head are placed all new growths which are strictly local in their development, and though sometimes attaining great dimensions, remain localised throughout their course, and which do not recur when completely removed. As a rule, benign tumours are homologous in structure—that is to say, they are overgrowths of tissues normally present in the region from which they spring. Thus the group embraces cystic tumours, arising from the distension of pre-existing spaces (sebaceous and atheromatous cysts), and local overgrowth of gland structure (adenoma sebaceum), of connective tissue (cheloid and fibroma), of muscular tissue (myoma), of nerve (neuroma), of blood-vessels (telangiectasis, nævus), and of the lymphatic system. In addition to these are certain growths associated with degenerative changes in the skin, and of doubtful pathological nature, though known clinically to be benign—such as colloid milium of the skin, xanthoma, and molluscum contagiosum.

Sebaceous cysts are most commonly seen on the scalp, the face, and the back, but they may develop in any part of the skin supplied with sebaceous glands. They occur more frequently in women than in men. There may be one or several cysts. They are rounded in shape, often somewhat flattened on the top, and may be as large as an orange. They grow slowly, and cause no pain unless they become inflamed. To the touch they feel like lumps of dough. The duct may be patent, so that some of the contents can be pressed out, or it may be closed; the latter is the more common

condition when they are situated on the scalp. The skin over them is generally normal, though somewhat redder than the surrounding parts. When the cysts are inflamed the skin becomes bright red and the tumour itself feels softer and sometimes breaks down into a fungating ulcer. There is some doubt as to the pathology of these growths. Paget regards them as new growths, but most observers believe them to be retention cysts, the accumulation of epidermic *débris* and sebaceous matter in the follicle causing expansion of its cavity, with secondary hypertrophy of their walls. Sebaceous cysts are distinguished from fatty tumours by the absence of lobulation, and the fact that the contents can be squeezed out when there is an opening. They should be emptied out through a small incision.

Dermoid cysts occasionally occur on the skin. They are often very numerous, and resemble fibromata; but on cutting into them a sebaceous-looking material escapes. They should be excised, unless their number makes interference undesirable.

The cystic tumours of the skin caused by cysticercus cellulosæ, echinococcus, etc., have already been referred to.

Adenoma sebaceum occurs chiefly on the face. The lesions are small, firm, whitish, or yellowish papules—or rather tiny solid tumours—firmly embedded in the skin at different depths, or projecting from it and varying in size from that of a pin's point to that of a pea. Sometimes they are red, owing to dilatation of the capillary vessels on their surface, and intermingled with them are numerous telangiectases. The lesions are usually symmetrical in distribution and though thickly crowded together do not run together to form patches. The tumours present no opening, but when pricked inspissated sebum can be squeezed out of them. They cause no

inconvenience as a rule, though occasionally painful in cold weather. The condition is generally congenital, though further crops of lesions appear after birth, especially at puberty. They undergo little change, though some of the lesions may suffer spontaneous involution. Rosacea is sometimes associated with the condition. Other textural defects in the skin—warts, nævi, keratosis pilaris, etc.—often coexist with adenoma sebaceum, and the patients are generally of a low grade of mental development, often imbeciles or epileptics. According to Pringle, to whom we owe an excellent account of this disease,* the essential lesions consist of an increase in number and complexity of the sebaceous glands, recalling at first sight the general appearances of sections of the hypertrophic masses sometimes seen in advanced rosacea. The condition is probably due to excessive development of gland structures from superfluous embryonic remains in the skin.

The appearance of the little firm tumours, thickly grouped about the sides of the nose, intermingled with telangiectases with the history of congenital origin and the association of other anomalous conditions of the skin and mental deficiency, will suffice in most cases to identify the disease.

No internal medication has any effect on the condition. Pringle found that attempts to scoop, gouge, or bore out the little tumours with instruments used for such purposes in cases of lupus were painful and unsatisfactory, owing to the depth at which they were situated and the firmness with which they were embedded. Superficial scarification was also unsuccessful. Electrolysis has been used by Crocker with success in a case in which the nodules were not

* *Brit. Journ. of Derm.*, vol. ii., 1890, p. 1, *et seq.* (with a good coloured illustration).

large. Scraping with a curette may also do good in slight cases.

Cheloid.—The normal process of healing by second intention is a transformation of vascular embryonic (granulation) tissue into fibrous tissue. Sometimes the transformation is tardily effected; the granulations continue to form and are converted into imperfect but excessive scar-tissue—hypertrophied cicatrix. A still further departure from the normal results in the formation of distinct fibrous growths—scar cheloid. In some cases growths of fibrous tissue resembling scar cheloid arise without any previous wound having been noticed; these cases have been classed together as spontaneous or true cheloid. A remarkable example of this has been recorded by Walter Smith.* The apparently spontaneous cheloid is most frequently observed on the trunk, especially over the sternum, and on the face; and when it is remembered how frequently acne pustules or slight injuries and the resulting scars are overlooked in these parts, the use of the term "spontaneous" is probably unjustifiable. Hence in this place the term "cheloid" will be used to denote all forms. The term "hypertrophied cicatrix" should be confined to cases in which the growth does not extend beyond the limits of the wound, "cheloid" being used to denote the condition when it has so existed.

The primary lesion is a white or pinkish swelling, which may project above the level of the skin or may lie within the corium. Sometimes dilated vessels are visible on its surface. The shape of the swelling differs according to its origin. Usually it tends to assume a rounded contour, but it may be depressed in the centre and it may extend laterally by claw-like processes—whence the name χηλή.

* *Brit. Journ. of Dermatology*, 1888-89, p. 157.

Occasionally it has a warty aspect, constituting the verrucose cicatricial tumour or warty scar.

Whilst cheloid may appear over any part of the body, it is commonest over the sternum and the rest of the trunk, and on the face and head. After small-pox most extensive formation of cheloid tumours has been observed. The tumours form in a few weeks and usually continue to enlarge for a long time. Sometimes they undergo involution. In a case of Goodhart's large cheloid tumours, which formed all over the body after small-pox, had disappeared at the end of a few months. This tendency to involution Hutchinson thinks is greater in young subjects. As a rule, during many years the tumours either remain stationary or enlarge very slowly.

The tumours are usually tender and may be the seat of itching, pain, and burning. Sometimes they give rise to no symptoms. The immediate cause of cheloid is unknown. The tumour occurs at all ages, but chiefly between 15 and 50. It is more common in negroes than in whites.

Virchow explains multiple cheloid not by malignancy or dyscrasia, but by an irritation, the degree of which is marked by the extent of the lesions. The tumours are covered by epidermis, which may be considerably thinned, so that the papillæ may be absent. The bulk of the growth consists of fibrous tissue, more cellular and vascular than normal scar tissue. The diagnosis presents no difficulty, the scar-like appearance and claw-like processes of the tumours being characteristic. The tumour, as a rule, develops to a certain size and then remains stationary. Sometimes, as already said, it undergoes involution. Removal or destruction of cheloid is never successful. Pressure with an elastic bandage, massage, and deep gashing of the tumour in different directions, so as to divide as many vessels as possible, give good results in

some cases. Electrolysis answers well when the growth is small. Even in the case of growths of moderate size I have seen complete cure brought about by electrolysis applied once a week for some time, followed by daily massage. When cheloid is painful, cocaine should be injected in and around the tumour, or belladonna or opium may be applied locally.

Fibroma.

Under this head are included soft fibrous growths (fibroma molluscum), firm fibromata, neuro-fibromata, and diffuse fibroma, which is one form of dermatolysis.

Fibroma molluscum is a pear-shaped, or rounded, fibrous tumour, covered as a rule by smooth skin and varying in size from a pin's head to an orange. This tumour is not uncommon and is almost always multiple. Usually the growths are pedunculated, but sometimes they form flat masses embedded in the corium. Occasionally they occur in immense numbers, and then the sebaceous glands in the skin covering them may be dilated, and in uncleanly persons the excessive secretion of sebum by decomposition may give rise to offensive odours. Wickham* has called attention to the association of brownish pigmentary stains and violaceous prominences and blotches in association with these growths.

They are commonest on the trunk, then on the head and face, and after that on the limbs; they are rare on the palms and soles. They have been met with on the tongue and buccal mucous membrane (Crocker). The tumours tend to increase in size and number, but they may remain stationary for years. Occasionally they slough and ulcerate.

* *Brit. Journ. of Dermatology*, 1890, p. 151.

They cause no pain, except when inflamed owing to accidental injury.

The growths consist chiefly of lax fibrous tissue sparingly supplied with blood-vessels and containing a few nerves. Nothing is known as to the etiology of the condition. The origin of the growths has been variously traced to the corium and the subcutaneous tissue (Virchow). They may appear in early childhood. They are distinguished from fatty tumours by the fact that they are pedunculated and present no trace of lobulation; and from sebaceous cysts by their solid structure. The treatment is removal by ligature, galvano-cautery, or the knife, special precautions being taken against hæmorrhage, which may be formidable. They may, however, be so numerous as to render treatment inadvisable.

Diffuse fibroma is a variety of fibroma molluscum in which the tumours are large and attached by broad bases. As they are usually multiple they overlap each other, forming large folds of loose skin with dilated sebaceous orifices. The condition must be distinguished from elastic skin, which is an anatomical peculiarity.

Hard fibromata and **neuro-fibromata** vary in size from a pin's head to very large dimensions. They usually arise in the corium, but may start in the tendon-sheaths, or the sheaths of the nerve fibres. In the latter case they are called neuro-fibromata; these lie as a rule in the subcutaneous tissue, but in rare cases have been found in the skin. Several tumours may coalesce into a single lobulated mass (Schwimmer). They occur on the trunk and extremities, and are usually isolated. Neuro-fibromata are usually multiple, and are movable in the subcutaneous tissue. The tumours tend to enlarge slowly, but sometimes calcification or fatty degeneration takes place. Thus blood-vessels may

become dilated into blood cysts (telangiectatic form). The neuro-fibromata, owing to the nerve-fibres stretched over or included in them, are often extremely sensitive to pressure. The other forms are not sensitive. On section, hard fibromata resemble tendon tissue.

Nothing is known as to the etiology of these growths. Like the soft fibromata, they may become developed very early in life. The diagnosis is usually easy. Neuro-fibromata may be mistaken for rheumatic nodules. The latter, however, occur chiefly in the region of the elbows and about the scalp, and there is a history of rheumatism.

The treatment is the same as that of soft fibromata. Neuro-fibroma may be successfully dealt with by excising a portion of the nervous cords supplying the tumours.

Myoma occurs as a solitary tumour chiefly on the breasts and genitals. Its distinctive clinical feature is that it contracts under the influence of cold. It grows slowly and generally causes no pain. It is principally made up of unstriped muscular fibre, with which may be mixed a greater or lesser amount of fibrous tissue, constituting **fibro-myoma**; or the structure may be largely erectile (**angio-myoma**); or the lymphatics may be involved (**lymphangio-myoma**).

A rare class of muscular tumours has been designated by Besnier **leiomyomata** (smooth muscle tumours). These growths, which are generally multiple, are soft, elastic, and often painful. They are sometimes sessile, sometimes pedunculated. They do not as a rule attain a very large size. The back is the commonest site, but they may occur on the the scrotum, the nipple, and in other parts. They develop very slowly, and often start in an ecchymotic spot. The skin over them is generally red,

but may be natural in colour. Sometimes they undergo involution, but as a rule they slowly increase in size and also in number, often coming out in crops. As they develop they become more painful. The diagnosis can be made only by exclusion.

These growths may arise from

1. The vessel walls;
2. The arrectores pilorum;
3. The deep layer of unstriped muscle in the nipple, scrotum, etc.

The only treatment for myomata of whatever kind is to remove them by surgical methods when inconvenient from their size or seriously painful.

Neuroma, so far as it affects the skin, has been described under the head of neuro-fibroma.

Myxoma, when it arises in the skin, usually forms rounded pedunculated translucent tumours. It is commonest in the loose skin of the scrotum and the labia, but may occur in any part. The growths are usually multiple. They tend to enlarge slowly. The gelatinous appearance of the tumour is characteristic. The absence of a central depression distinguishes them from molluscum contagiosum. They are made up of lax tissue, chiefly fibrous, with wide interstices filled with mucilaginous matter containing mucin. The treatment is to remove the growths by ordinary surgical methods.

Myxœdema may be regarded as diffuse myxoma. The condition belongs more to the province of general medicine than that of dermatology.

The skin may be the seat of a variety of conditions, congenital and acquired, in which permanent dilatation of blood-vessels, sometimes with formation of new vessels, is the most prominent anatomical feature.

Telangiectasis is an acquired condition in which

the capillaries are considerably dilated over a larger or smaller area of skin. They are often stellate in shape, a number of vessels radiating from a raised central dot which is the enlarged loop of an arteriole. These lesions are generally seen in persons with a delicate skin; occasionally they follow injury, and in a person who has been struck by lightning the vessels of the skin can sometimes be seen clearly marked out as if they had been injected. Telangiectasis also occurs in the upper part of the body, and on the face and neck, particularly in elderly people, in the form of small spots constituted by small tufts of dilated capillaries. Clinically, telangiectasis resembles the slighter forms of vascular nævus. The condition is most common on the face, especially in persons much exposed to the weather, and is often associated with inflammatory and other morbid processes (rosacea, adenoma sebaceum, etc.). If treatment is required, the dilated vessels should be obliterated by electrolysis.

Nævus vascularis, or cutaneous angioma, is a congenital condition characterised by the over-development of the vascular tissue in the skin. Frequently at first cutaneous nævi resemble flea-bites, and by an extension of the formation of new capillary vessels cover a wider area, and constitute the "port-wine mark." If they remain smaller with dilated vessels at the outer part the spider-like nævus is formed. With or without a growth of new capillaries in the corium there may be a new formation of veins in the subcutaneous tissue, thus constituting the capillary venous or the venous nævus, soft, compressible, slightly lobulated tumours of greater or less extent, and either bright red or purple in colour according as the corium is or is not affected. Sometimes a venous nævus contains a considerable amount of fat constituting the nævus lipomatodes, which has the combined characters of a venous nævus and a lipoma.

Capillary nævi occur most frequently on the face, head, and neck, but they are met with in other parts. Venous nævi are met with on any part of the body, not infrequently on the lips and tongue. The sago-grain tongue is regarded as a form of nævus. Nævi may be fully formed at birth and remain stationary throughout life. Frequently, however, they are small at birth and extend slowly for some years, after which they remain stationary. Very many nævi, which are present at birth, disappear within a few months. Slight injuries to venous nævi frequently cause hæmorrhage, or result in inflammation which may lead to extensive ulceration, or to spontaneous cure by thrombosis or sloughing. Cysts may form from obliteration of vessels.

The microscope shows the growth to consist almost entirely of blood-vessels. In the case of the nævus lipomatosus there is also a good deal of new-formed fat. Of the causation of the condition nothing is known. The new-formed vessels arise from pre-existing vessels in the corium or subcutaneous tissue. In very slight cases there is always a chance that the condition may disappear spontaneously; compression of the dilated vessels, as by the application of collodion, may help to bring this about. Very large nævi are best left alone. In ordinary cases various methods have been found successful. Inflammation induced in the nævus will sometimes cure it. For this purpose vaccination or the injection of irritants and astringents, such as tincture of iodine, perchloride of iron or tannin, may be found of service. Electrolysis has also given good results. The needle must be passed entirely through the tumour in several directions. Multiple puncture with the galvano-cautery has also proved satisfactory in some cases. Caustics, such as fuming nitric acid and acid nitrate of mercury, have their advocates.

In choosing a method the practitioner must be guided by the size and structure of the nævus, and the nature of the scar that is likely to be left. For large projecting nævi the best treatment is excision.

Nævus pigmentosus, or mole, has no pathological or clinical relation with the true nævus that has just been described. The lesions consist of pigmentary macules, or slightly raised pigmented patches with or without an excessive growth of hair. In the latter case the condition is sometimes termed nævus spilus. The pigmentation may be slight or absent (white moles; Hutchinson). Sometimes moles are more distinctly raised and contain a quantity of fat. Another variety consists of pigmented papillomata, which may have a wide extent. These moles, which are not hairy, are called verrucose nævi.

Moles are commonest on the face, neck, and trunk, but they are also met with on the limbs. Usually small, they may occupy extensive surfaces, as in Fig. 11. They are often single, but frequently they occur in great numbers. They have been observed to be distributed in the region supplied by a particular cutaneous nerve. Warty moles are usually unilateral. Congenital in origin, or developing very soon after birth, they remain stationary or grow with the growth of the individual. Not infrequently they become the starting-point of sarcoma, usually of the melanotic variety. If they cause great disfigurement or threaten to become malignant they should be removed with the knife or the thermo-cautery.

Angiokeratoma is a rare affection characterised by the development of capillary telangiectases, with small warty growths on the hands and feet, chiefly on their dorsal aspects (Fig. 12). The initial lesions are tiny red or violet spots, at first discrete, afterwards becoming clustered into irregular groups and forming

Fig. 11.—Large Hairy Mole (Nævus pilosus) and several Benign Fibrous Tumours (Molluscum fibrosum) covering the "Bathing-drawers Region," and several smaller outlying Moles. (*After* Michelson.)

small patches distinctly raised, rough on the surface, hard, and sometimes covered with thickened epidermis so as to resemble warts. They become paler on pressure, but the blood cannot be completely forced out of them, a small bright red or black spot, clearly representing a capillary loop, always remaining in the

Fig. 12.—Angiokeratoma. (*After* Mibelli.)

centre. On pricking them, blood escapes. No retrogressive changes occur in the lesions, but fresh telangiectases develop from time to time. The condition gives rise to no subjective symptoms.

Angiokeratoma commences, as a rule, in early

adult life, and is always associated with a marked tendency to chilblains. Most of the patients in the cases so far recorded have been young women. There sometimes appears to be a hereditary element in the disease. I have had under my care a father and two children, the condition being congenital in the latter. Though all of them suffered from chilblains, no telangiectases developed on the parts affected by chilblains. The essential feature of the process is telangiectasis resulting from repeated temporary dilatation of the small blood-vessels. The hyperkeratinisation which gives the fully-developed lesions their warty appearance is a secondary change. Angiokeratoma can hardly be mistaken for anything else. The lesions show no tendency to spontaneous involution, and fresh ones usually come into existence each winter. The best treatment is electrolysis, which has been successfully used by Pringle. A fine steel needle connected with the negative pole is inserted into the telangiectasis, the positive pole being held in the other hand, and a current of two to three milliampères allowed to pass for thirty seconds. The procedure causes some pain, but is not followed by scarring. The general measures for the improvement of the circulation in persons subject to chilblains are also indicated.*

Infective angioma.—Under this name Hutchinson has described an affection characterised by minute red points "like grains of cayenne pepper" embedded in the skin. The lesions are arranged in groups which spread out peripherally while clearing up in the centre, thus forming rings. Outside these, fresh points or "infective satellites" arise, and by the

* An excellent account of angiokeratoma (with coloured illustrations) embodying nearly all the literature of the subject was given by Pringle in the *British Journal of Dermatology* for August, September, and October, 1891.

meeting of adjacent rings large areas of skin become affected, the lesions having the gyrate serpiginous outline common in such circumstances. Most of the little points can be obliterated by pressure, but some, larger than the others, cannot. The limbs are generally the seat of the affection, which has also been seen on the face and trunk. The disease spreads slowly, with intervals of remission. It begins in early life, vascular nævus appearing sometimes to be a predisposing factor; indeed, Jamieson thinks the condition itself is simply that of a superficial nævus, in which view I agree. Hutchinson, on the other hand, looks upon it as a kind of lupus and allied to lymphangiectodes. The fact of the development after birth and the serpiginous character of the telangiectases will suffice to identify the affection. The only treatment that seems likely to be successful is electrolysis.

Lymphangioma circumscriptum cutis is an affection characterised by the formation of vesicles connected with the lymphatics in circumscribed areas of the skin. Patches of greater or less extent are formed, covered with clusters of small vesicles. These are deep-seated and have thick walls, and sometimes have a superficial resemblance to warts. They have been met with on the limbs, the face, the neck, and the shoulders. They are pale or straw-coloured, sometimes marked with red striæ, and contain clear alkaline fluid in which a few lymph-corpuscles are found. The condition is very chronic, spreading slowly at the circumference where fresh vesicles develop. The affection is probably congenital, but is generally first noticed in early childhood. Both sexes appear to be equally liable to the affection. The essential features of the condition are overgrowth and dilatation of the lymphatic vessels. Sometimes the patches are partly fibro-cavernous in structure, and the occasional association of the lesions with venous nævi suggests that

the blood-vessels are at least in some cases concerned in the process.

In one case,* in a boy aged nine, after two attacks of inflammatory character in two successive years, dilatation of the lymphatics occurred. The dilated vessels filled and became tense when the patient stood up, and collapsed leaving only indefinite traces when he lay down. Microscopic examination showed plexiform dilatation of lymphatics, the walls of which, as well as the surrounding tissues, were normal. For this condition A. G. Francis † has proposed the term "lymphoma simplex."

Under the name of *lymphangioma tuberosum multiplex* Kaposi ‡ has described a condition met with on the trunk and neck of a woman aged thirty-two; it had been noticed during childhood, but had extended in the few years previous to her coming under observation. The lesions consisted of close-set vesicles, the size of lentils, and smaller. Microscopic examination showed small lymphatic dilatations throughout the corium. Besnier and Doyon consider that such cases may be examples of cystic adenomata developed in the sweat glands. After reviewing all the cases reported, Francis concludes that they are examples of lymphangioma, and suggests the term first proposed by Török, "lymphangioma cavernosum."

Under the head of *hæmato-lymphangioma* Francis has classed several groups of cases:—1. The modification of ordinary angiomata (nævi) of the skin and mucous membranes, termed "warty degeneration," the best known example of which is the "sage tongue." The white wart-like prominences contain

* Hoggan, *Journ. of Anat. and Phys.*, 1884, p. 304.

† "Lymphangioma circumscriptum cutis," *Brit. Journ. of Dermat.*, February and March, 1893, where a comprehensive account of the whole subject is given.

‡ Kaposi, Op. cit., vol. ii.

cystic spaces filled with clear fluid. Most observers in England regard them as dilated lymphatics; others, for example Besnier and Doyon, consider them to be the result of the occlusion of blood-vessels, and hold that the condition is allied to angio-keratoma.

In another group the primary condition is a well-marked angioma, upon which a condition of lymphangioma afterwards develops The first case was described by Tilbury and Colcott Fox.* A man aged twenty-one, born in Mauritius of English parents, had two large nævi on the left thigh, which had remained unchanged. At the age of six months the veins of the left calf began to enlarge. At the age of two years a number of little "warty" growths appeared on the skin of the left buttock, the flexor surface of the left knee, and the left half of the perinæal region, on areas quite distinct from those occupied by the nævi. At the same time he had an attack of fever, which left him very prostrate for six months. On each occasion the skin affection became worse, the "warts" enlarging and becoming more vesicular in appearance.

Another group of cases, included under the same heading by Francis, resemble those first described by Hutchinson. I have also recorded a case. † The patient was a delicate, fair-complexioned little girl, aged seven. The disease made its first appearance when she was a few months old, as a group of vesicles in the left scapular region; the affection spread slowly and caused but little inconvenience. There were no attacks of lymphangitis.‡

* "Case of Lymphangiectodes," Path. Soc. Trans., vol. xxx. p. 470.

† "Internat. Atlas of Rare Skin Diseases," fasc. i. pt. i.

‡ For exhaustive discussions of the pathological nature of lymphangioma the reader is referred to A. Schmidt (*Arch. f.*

The only treatment of these conditions is destruction by electrolysis or removal. In either case the operation must be thorough, or recurrence is almost certain to take place.

Xanthoma.—This term is applied to a somewhat rare disease, marked by the formation of plates or nodosities of a yellow or yellowish-white colour embedded in the corium. When the lesions are in the form of plates (xanthoma planum) they vary in size from that of a pin's head to that of a finger-nail; the larger plates are often composed of a group of smaller ones. They are flat, or have a slightly raised margin; they are so soft as often to be imperceptible to the touch when the finger is drawn over them. The skin covering the plates presents the normal plication, and is not scaly.

The nodular lesions (xanthoma tuberosum) form papules, which are sometimes separate, sometimes clustered together or arranged in lines. The papules vary in size, from that of a millet seed to that of a pea, or larger. The smaller lesions are generally soft, while the larger ones are firmer and more prominent, standing on an inflamed base, and being painful on pressure. Besnier has applied the term *xanthôme en tumeurs* to the condition in which very large lesions are formed. The distribution and course of the lesions in different cases differs so widely that they must be treated of separately.

Xanthoma planum is nearly always met with in the form of plates, very rarely of nodules. Occasionally cystic spaces form within the lesions. Commencing as a rule in the upper lid near the inner canthus on one side, it soon makes its appearance

Derm. u. Syph., 1890) and L. Török (*Monatshefte f. prakt. Derm.*, Bd. xiv. No. 5). Full abstracts of both these papers will be found in the *Brit. Journ. of Dermatology*, 1892, p. 133 and p. 392 respectively.

on the other side, and, after extending for a time, remains stationary for the rest of the patient's life. In many cases the lower lids are affected as well as the upper, and sometimes a zone of xanthoma is formed, looking like a circle of wash-leather let into the lids. Xanthoma planum has also been met with on the ears, the nose, the mucous membrane of the mouth, the tongue, the palate, and other mucous membranes. The affection usually begins after forty; when it appears in childhood it is generally as part of a xanthoma multiplex. The affection is commoner in women than in men (in the proportion of about three to one). It seems sometimes to be hereditary, and it has been observed to skip a generation. It has frequently been noticed in connection with migraine and jaundice. The diagnosis can seldom present any difficulty, the appearance of the yellow patches embedded in the corium, and almost imperceptible to the touch, being absolutely distinctive. In severe cases excision is the only treatment.

Xanthoma multiplex is generally associated with jaundice, but, especially in children, it may exist independently of this condition. The form of multiple xanthoma occasionally met with in diabetes mellitus presents clinical peculiarities which entitle it to separate consideration. In xanthoma multiplex the lesions are nearly always of the nodular form, but the plane variety is occasionally met with. The colour varies greatly; a mixture of blackish pigment with the yellow has been noticed. A case has been recorded by Köbner in which the lesions developed in capillary nævi, and had a reddish hue. The eruption has been found associated with thickening of tendons (Hutchinson).

Linear grouping of lesions is often observed, especially along the lines of flexion. No part of the skin is exempt. The eruption is usually widespread, but

it may be limited to one part. Although it generally starts on the eyelids, many cases are recorded in which these were spared. The condition has been noted in the mouth, pharynx, and œsophagus, the respiratory passage, the aorta, the bile duct, peritoneum, etc. The hands and the penis are often affected, and around the anus and in the gluteal folds the lesions may be present in great numbers, and constitute small tumours in point of size (xanthoma tuberosum). Most cases are dependent upon hepatic disease and are associated with jaundice; but in a considerable number there appears to be no such connection. Some cases are congenital, others begin within the first few years of life. In some of these early cases a hereditary disposition seems to have existed. The disease usually progresses for a time, and then remains stationary for the rest of life. Spontaneous involution has been known to occur, but this is rare. The distinctive feature of the lesions is that they are embedded in the corium. Some cases of multiple dermoid tumours of the skin have been found indistinguishable from xanthoma multiplex until microscopic examination was made. The condition has also been confounded with urticaria pigmentosa. The latter affection is characterised by itching and wheals, and can usually be seen at some stage in the disease, and the skin is in an urticarious state, so that factitious lesions can be induced.

The only treatment is excision.

Xanthoma of Balzer.—This extremely rare affection is characterised by hypertrophy and deformity of the elastic tissue in limited areas of the skin. The lesions have a general similarity to those of ordinary xanthoma. They consist of slightly-raised lenticular pinkish-yellow areas, soft to the touch, and having no inflammatory zone around them. In the only case of this affection that has come under my own notice the

patient was a young lady, aged twenty-one. The lesions were situated on the left side of the lower part of the neck, and the shoulder of the same side. They had appeared about puberty, and very slowly increased in size and numbers. On microscopic examination by Jackson Clarke the elastic fibres were found greatly thickened, fibrillated, and knobbed. There was neither inflammatory exudation nor fatty cells. In Balzer's case a slight inflammatory infiltration was present. The diagnosis can be made with certainty only by the aid of the microscope. No treatment has yet been found successful.

Xanthoma diabeticorum.—The marked individuality of this variety consists in its rapid evolution, its rapid and complete involution, and its association with diabetes mellitus. The author drew attention to these peculiarities in 1883 * in connection with the fourth case then on record. Since that time ten other cases have been brought forward, and the affection is now everywhere recognised, though it is extremely rare. The lesions are distinguished from those of other forms of xanthoma by the presence of a raised red area around the yellow spots. This gives the eruption the superficial aspect of common acne, for which it has been mistaken, until the lesions have been punctured and proved to be solid. The spots appear first on the extensor surfaces of the limbs, next on the lower part of the back and abdomen, on the buttocks, and on the penis. They have also been met with on the palms in several cases. In only one case did they affect the eyelid. They generally disappear in a few weeks, involution being sometimes preceded by increased itching in the patches. Fresh crops may, however, continue to come out for some time. The affection is commonest in young adults, especially in those inclined to obesity. It is always associated with

* Path. Soc. Trans.

glycosuria, though when the patient first seeks advice no sugar may be found in the urine. Of the manner in which the diabetes produces the skin lesions nothing is at present known. In its early stage xanthoma diabeticorum may for a few days simulate lichen or acne; but when the lesions are fully developed their xanthomatous character becomes evident.

In contrast with other forms of xanthoma this prognosis is good, so far as the skin eruption is concerned, but its significance must not be forgotten as an index of a grave constitutional state.

The eruption tends to subside under the influence of antiglycosuric treatment.

Histology of xanthoma.—The morbid anatomy of all forms of xanthoma, with the exception of xanthoma elasticum which has already been described, is essentially the same. It will be convenient to give it under one heading. The process consists in the accumulation of large, often multinuclear cells, of connective tissue type, filled with fat drops. In addition to this there is a formation of new, and a destruction of pre-existing, fibrous tissue. The view of Chambard is that now generally received: namely, that the affection is essentially of inflammatory nature, and that the xanthoma cells (which are practically the same as the cells met with in atheroma of arteries) are developed partly from leucocytes, partly from connective tissue corpuscles. My own observations, with G. C. Henderson and Jackson Clarke, in xanthoma diabeticorum, point distinctly to the process being of inflammatory nature. The elastic fibres remain unaffected.*

* A summary of all the cases recorded up to date, with a complete account of a second one observed by myself, with the results of a histological examination by Jackson Clarke and a discussion of the whole subject, will be found in *The British Journal of Dermatology*, August, 1892. The same number contains a report of a further case by Crocker.

Rhinoscleroma is a new growth, allied to the granulation tumours, which commences in the nostrils and the skin about them. The initial lesions are nodules in the cutis, and deeper layers of the mucous membrane, which coalesce to form a hard growth with smooth glistening surface, which spreads inwards from the lip, and downwards to the pharynx from the posterior nares. On the mucous membrane the appearance is as if the parts had been infiltrated with glue, which had set to the solidity of stone. When the growth is situated in the skin the epidermis is tense and often cracked, especially about the corners of the nostrils and mouth; from the cracks a glutinous discharge exudes, which dries into yellow scabs. The growth is not painful, but aches on pressure. It causes great deformity (Fig. 13), but no symptoms except those due to nasal obstruction; the danger to life is mechanical from blockage of the larynx. It has also been known to perforate the skull into the brain (Kaposi). The growth does not break down spontaneously, but is generally slowly, but surely, progressive. The disease may last fifteen or twenty years, or even longer. Spontaneous disappearance after acute fevers has been recorded.

The condition is very rare, and so far as the majority of the cases hitherto recorded would seem to show, is chiefly prevalent in Austria. Keegan* has reported four cases of rhinoscleroma in Hindoos. Both sexes are equally liable, and, as far as can be judged from the limited statistics at present available, the disease develops before the age of forty. Bacilli, closely resembling Friedländer's pneumococcus, but distinct from it, have been found by Frisch, Cornil, and others; and some investigators, including Unna, are inclined to think that the growth is an

* *Indian Med. Gazette*, January, 1889.

inflammatory product, arising from blocking of the lymphatics by bacilli (Fig. 5, E).

The treatment can only be palliative. The growth

Fig. 13.—Rhinoscleroma. (From a model in the Museum of St. Mary's Hospital, a replica by Baretta from specimen No. 1615 of the Museum of the Hôpital St. Louis, Paris.)

recurs almost immediately after removal or destruction. All that can be done is to keep the air-passages patent as far as possible, and keep up the patient's strength if necessary. Salicylic acid injected into the growth and applied to its surface in various ways, has been found useful by Lang in diminishing the bulk of the tumour in one case.

Molluscum contagiosum is characterised by the formation of small growths like tiny mother-of-pearl shirt-buttons (Hutchinson). They are roundish in shape and generally flattened on the top, where there is usually a depression, in which there is a small aperture leading into the interior of the tumour. Through this hole a whitish material, or sometimes a milky fluid, can be squeezed out. The little growths are firm in consistence. At first they are sessile, but as they develop they not infrequently acquire a pedicle. They are most commonly seen on the face, the eyelids being a favourite situation. They are also met with on the neck, the breast, the limbs, the genitals, and about the anus. They are never seen on the palms and soles. They are generally multiple, sometimes very numerous, and widely distributed. After attaining a certain size they may remain stationary for an indefinite time. They often undergo involution or drop off owing to strangulation of the pedicle. Sometimes they become inflamed and are destroyed by suppuration.

Molluscum contagiosum is most common in the young, and poverty seems to be a predisposing condition. The disease is generally believed in England to be contagious, and many cases are on record in which several members of the same family suffered from it at the same time. Successful experimental inoculations have been made by Vidal and by Pick.* It is clear, however, that the contagion is operative only under certain exceptional conditions, of which nothing is definitely known. The disease has been known to develop after the use of Turkish baths, probably as the result of infection. A summer or two ago at least half-a-dozen cases came under my care within a very short time of each other, in all of which the disease appeared to have

* *Brit. Journ. of Dermatology*, 1892, p. 234.

followed a visit to the same Turkish bath. Pick concluded from his experiments that there is a period of incubation lasting two months, and that the inoculated disease requires from three to four months for its complete evolution. In structure molluscum contagiosum resembles a racemose gland; and many authorities—including Hutchinson, Kaposi, Vidal, and others—believe it to be merely an enlarged and altered sebaceous gland. This view finds some support in the fact that the growth never occurs in the palms and soles, where no sebaceous glands exist. Virchow, however, believes that the hair follicle is the starting-point of the process. His observations have been confirmed by Thin, Crocker, and others. Psorosperms, developing in the epithelial cells, are considered by Neisser and Mansuroff to be the real etiological factors in the process, and a micrococcus has been found by Shaw.*

The appearance of the little pearly growths, with the central depression and the hole leading into the substance of the tumour, is characteristic. Sometimes when they are very small they resemble vesicles, and might suggest varicella. The microscopic examination of the contents will show the nature of the affection. A small tumour on the genitals has been mistaken for a hard chancre, but the presence of similar growths elsewhere and the other clinical aspects of the case will generally prevent such an error.

Molluscum contagiosum sometimes disappears spontaneously. Touching with pure liquid carbolic acid, followed by brushing with flexible collodion, will often get rid of the tumours. When this fails they should be split from below upwards and squeezed out, or they may be cut off.

Colloid milium is a rare condition, characterised

* *Amer. Journ. of Cut. and Gen. Urin. Dis.*, vol. x., 1892.

by small yellow translucent, cyst-like formations in the skin, chiefly on the upper part of the face. They do not contain fluid, but a gelatinous material. Sometimes they become depressed in the centre and are slowly absorbed ; sometimes they become inflamed and afterwards dry up. The affection occurs in both sexes, and does not generally begin before puberty. The condition appears to be one of colloid degeneration of the skin. Spontaneous recovery has been known to occur, but the condition is refractory to treatment. Erasion with the sharp spoon, or electrolysis, might be tried.*

Epithelioma adenoides cysticum.—This growth was first described by Jacquet and Darier in 1887,† under the name of *hydradénome éruptif*, and since then by Török, Perry, Quinquaud, Philippson, Besnier, Fordyce, and others, each writer seeming to make it a point of honour to invent a new name for the tumour. The one used here was proposed by Brooke,‡ who has made a most painstaking investigation of the disease. The following brief description is mainly condensed from his. The lesions are small tumours, at first of the same colour as the surrounding skin, which afterwards, as they increase in size, become shining and translucent, but hardly sufficiently so to suggest that they contain fluid. Nearly all contain one or more minute white brightly refracting milium-like bodies. The little growths are firm, but not hard, and can be felt to be embedded in the skin. In the four cases observed by Brooke the most common sites of the growths were the space between the eyebrows, the root of

* The affection was first described by Wagner, *Arch. d. Heilk.*, Bd. vii., 1866. The pathology of the condition has been discussed by L. Philippson, *Brit. Journ. of Dermatology*, vol. iii., 1891 ; and by Besnier, French translation of Kaposi, vol. ii. p. 370.

† *Annales de Dermatol. et de Syph.*

‡ *Brit. Journ. of Dermatology*, 1892, p. 269.

the nose, the nostrils, the cheeks, the upper lip, and to a less extent the chin. In these situations they were so thickly clustered together as to form disfiguring lumpy patches. The growths may occur on any part of the body from the occiput to the pelvis, and on the arms and legs. The course of the affection is very slow, subject, however, to sudden acceleration, even after it has lasted many years. It begins, as a rule, between the tenth and fourteenth years. Heredity appears to play some part in its causation, three of Brooke's cases having occurred in members of the same family (mother and two daughters), and two cases recorded by Fordyce* having been in a mother and daughter respectively. The lesions never attain any great size and may remain unchanged for years. They are painless and the only symptom to which they give rise is slight pricking or itching. They show no tendency to ulceration. Clinically the growths seem to be absolutely benign, but histologically they are epitheliomata in the wider sense of that term, denoting only a tumour composed of epithelial elements and not necessarily malignant. Microscopically the growths, according to Brooke, consist of finger-like prolongations of epithelium coiled on themselves so as to form masses, in which are cysts filled either with purely colloid material or with concentric layers of flattened horny cells round a colloid centre. Some believe that the growth has its starting-point in the sweat-glands, but Brooke holds that it originates directly from the epidermis and from the epithelium of the hair sacs. The new cells are probably of embryonic origin.

The only treatment is removal by excision or

* *Journ. of Cutaneous and Genito-Urin. Dis.*, December, 1892. The paper is illustrated by an excellent coloured plate and numerous microscopical sections.

destruction with the cautery. Healing takes place readily. Fordyce succeeded in removing most of the larger tumours by means of the dermal curette, some of the smaller ones being expressed with a comedo extractor.

Darier's disease.—This name is now by general consent given to a rare disease formerly termed by E. Wilson "ichthyosis sebacea cornea," in recognition of the exhaustive study of two cases made by Darier, from whose work * the following account is chiefly derived. Darier himself applied the term "follicular vegetating psorospermosis" to the process. The lesions first appear as small brown or yellow crusts, which are removable after maceration, but readily form again. The crusts project sometimes as much as 3 to 4 mm. above the surface. They are hard, dry, and adhere firmly to the underlying tissue. When detached, as they may be by squeezing with the fingers, they are found to present on their under-surface a softish prolongation which dips into a follicle. This soft part can be squeezed out by pressing with the finger-nails. The lips of the depression are slightly everted and are redder and firmer than normal. The lesions are at first discrete, but may become confluent by extension, and the thickening of the affected parts increases so that nodular masses are formed from which oozes an offensive discharge.

The eruption in Darier's first case (a woman aged 30) began in the epigastrium and on the flanks, and rapidly spread to the sternal region, the face, and the scalp. Finally, the whole of the trunk was affected, and also the limbs to a slight extent. In certain parts, *e.g.* the scalp, temples, naso-labial furrows, axillæ, groins, and anal cleft, the lesions were confluent three years after the commencement of the

* *Ann. de Derm. et de Syph.*, No. 7, July 25th, 1890.

disease. In the second case recorded by the same author the eruption began over the sternum when the patient (a man) was 38. Seven years later the scalp was covered with yellowish-brown crusts, which covered pits from which tufts of hair projected. The face, except the eyelids and the circumference of the orbits, was covered with papules, which were confluent at the roots of the hair on the eyebrows and around the mouth. The shoulders and the neck were moderately affected. The middle of the back part was covered with a mass of lesions resembling large comedones. A similar condition existed on the sternum and epigastrium. On the hypogastrium, about the pubes, and in the groins the lesions constituted large hemispherical bosses, with a central pit, from which stinking puriform matter escaped. There were many lesions on the outer and posterior aspects of the fore-arms, and some in front of the anus. The inner surfaces of the thighs and legs were slightly affected. The palms and soles were studded with yellow dots from thickening of the horny layer.

In all the recorded cases—some twelve in number, including those of Darier—the affection was slowly progressive. Fresh areas may become rapidly covered with papules. In ten of the twelve cases the patients were males. The affection does not seem to react to any marked extent on the general health.

The lesions almost invariably implicate the hair follicle, the outer part of which is dilated. The granular layer of the epidermis is slightly, the mucous layer greatly, thickened and its interpapillary processes are enlarged. Some of the cells of these layers contain "round bodies" about as large as the epithelial cells themselves, and presenting a granular protoplasm and a nucleus with a doubly contoured nuclear membrane. The sebum-like plug which

fills the depression contains numerous round or oval highly refracting "grains," in which a trace of a nucleus can sometimes be made out. Darier regards the "round bodies" and "grains" as psorosperms, which he believes to be the cause of the disease. This view has received the support of Malassez, Balbiani, and some subsequent observers. Török and Tommasoli, on the other hand, on account of the resistance of these bodies to mineral acids and alkalies, regard them as products of degeneration. The question must therefore be considered, for the present, an open one.

The only treatment which offers any chance of success is that proposed by Schwimmer, who, by using the thermo-cautery, destroys the lesions as they appear.

Acanthosis nigricans is a peculiar pigmentation of the skin with warty growths, described by Pollitzer and others. In the few cases on record the pigmentation has occurred more or less suddenly, the face, neck, axillæ, upper limbs, groins, abdomen, thighs, and genital regions being the parts affected. The mucous membrane of the mouth also suffers. The discoloration varies from yellowish-brown to almost black. The affected skin is thickened, the natural lines of cleavage being deeper than normal, and in some parts it is covered with small papillary growths. The affection gives rise to no subjective or constitutional symptoms. In one case the pigmentation disappeared spontaneously.

Lentigo is the familiar condition known as "freckles," or small pigmented spots, the colour of which is usually yellow or yellowish brown, occasionally sepia. Their most common situations are the face, especially about the nose and cheeks, and the backs of the hands. Sometimes they are seen on covered parts, such as the arms, the back, the buttocks,

etc. Generally the number of them is moderate, and they are small and light in tint; occasionally the face is so thickly covered with them, and they are so large and dark, as to constitute a disfigurement. Freckles are sometimes congenital, but generally first appear in childhood about the age of ten. A fair, delicate skin is a predisposing condition. The exciting cause is sunlight; hence they are always most marked in summer and fade more or less in winter. The affection tends to disappear as age advances. In rare cases freckles develop in adult life and in old age, particularly on covered parts; in such circumstances the condition is probably connected with impairment of nutrition or senile atrophy. Pathologically freckles are patches formed by the localised deposit of pigment in the basal layer of the epidermis. If treatment be considered necessary the indication is to remove the patches by inducing localised blistering or desquamation. The best remedy is a solution of perchloride of mercury, two or three grains to the ounce, applied several times a day. Pure carbolic acid applied with a match to each spot separately, and salicylic acid used in the form of Unna's plaster-mull, are also useful. In most cases, however, the cure is merely temporary. In view of the serious constitutional results that may possibly follow the unrestrained use of corrosive sublimate, it should be employed only under medical supervision, and patients should be warned to have nothing to do with advertised nostrums.

Papilloma of the skin includes various conditions characterised by the formation of papillary growths. These may be of syphilitic, tubercular, cancerous, or inflammatory nature (as in sycosis, eczema, etc.), and as such are treated of with the process of which they are the result. In this section only innocent papillary growths arising independently

of any general process—warts, corns, and horny formations—are considered.

Warts are of several kinds, the differences being in their shape, general appearance, and situation; structurally they are all essentially the same. The common wart (verruca vulgaris) is generally seen on the hands, but also on other parts, as a small sessile growth with a surface at first smooth, afterwards roughened with enlarged papillæ, which can sometimes be seen projecting like coarse bristles; occasionally the little mass is fissured here and there to its base. The colour is at first that of the skin, but after a time, owing to changes in the keratin, and in uncleanly persons to griming with dirt, it becomes brown or even black. They may be single or multiple; sometimes they are seen clustered together on the fingers. The condition is most common in childhood, and tends to disappear with the advent of puberty. It may, however, persist much longer, and may even become developed in adult life. Warts give rise to no symptoms unless they are of such a size or in such a situation as to interfere with the holding of a pen, etc.

Flat wart (verruca plana) may occur in youth, but is generally seen in old age. In young persons they are most common on the face, particularly the forehead, and on the backs of the hands; in the elderly the back and the arms are the ordinary situations. The warts are, as the distinguishing epithet implies, flat; they are smoother, as a rule, than the common wart, and often square in outline, resembling the papules of lichen ruber planus. The changes found on examination are hypertrophy of all the layers of the epidermis, with elongation of the papillæ. In old people they are often large and prominent, dark in colour, and associated with other senile changes in the skin. They are generally

situated on the back, the fore-arms, and the face. They often itch intensely. Such a wart may form the starting-point of a malignant growth.

Another form of wart is characterised by raggedness of surface, the overgrown papillæ being separated and forming finger-like processes; hence this kind of wart is known as verruca digitata. They are most common on the scalp, especially in women. They sometimes cause inconvenience in dressing the hair.

A long thread-like wart (verruca filiformis) is sometimes seen on the neck and the eyelids.

Verruca seborrhoica (seborrhœic wart) occurs only in adult life, and generally in old age. The lesions consist of multiple patches of warty growth on the back, arms, belly, sternum, and neck; the face is sometimes, though rarely, attacked. The lesions are generally more or less grouped in lines following the natural lines of cleavage in the skin. The patches are generally rounded in outline, and usually present varying degrees of pigmentation, from brown to black. In connection with this point it is necessary, as pointed out by Pollitzer,* to distinguish between the growth itself and the crust with which it is covered. It is to the latter that the colour is due, and it is obvious that the depth of tone must depend on the amount of dirt accumulated on the surface of the lesion. In cleanly persons the patches are of a pale fawn tint, and the surface, which is soft and greasy to the touch, has a reticulated appearance. In those who wash seldom and imperfectly the warts are covered with a dark crust of dirt which can be scraped off with a knife; a pinkish-yellow reticulated surface will then come into view. The only symptom to which the warts give rise is itching, which, especially in elderly persons, may be very troublesome. According to Pollitzer, the histological

* *Brit. Journ. of Dermatol.*, vol. ii., 1890, p. 200.

characters of the growth are slight thickening of the horny layer, with considerable hypertrophy of the Malpighian layer, while in the papillary and subpapillary layers there are epithelioid cells in groups and lines separated by bundles of connective tissue with a peculiar infiltration of fat, affecting the coil-gland epithelium, the middle and papillary layers of the cutis and the epithelium of the rete, and perhaps some atrophy of the sebaceous glands and hair follicles. He looks upon these warts as benign growths developed out of "misplaced" embryonic cells, resembling in respect of the presence and peculiar arrangement of the epithelioid cells the growth called by Von Recklinghausen "lymphangi-fibroma." The fatty infiltration in the skin may perhaps be regarded as evidence of a seborrhœic process, if Unna's view that the coil-gland glomerulus not only secretes sweat but is the chief source of fat for the skin be accepted.

If treatment be considered necessary the growths may be dealt with in the same way as ordinary warts.

Venereal warts (verrucæ acuminatæ) are papillary excrescences usually seen about the genitals in both sexes, sometimes in the axillæ and other moist, warm parts. They are generally reddish in colour, pointed, tufted, or cauliflower in shape, bathed in decomposed sweat and purulent discharge; sometimes, especially about the vulva, they grow with an unrestrained luxuriance suggestive of tropical vegetation. These warts are not syphilitic, but they are most frequently gonorrhœal in origin, proliferation of the papillæ being due to the irritation of the discharge. Somewhat similar warts are sometimes seen in pregnant women who have not suffered from gonorrhœa. In such cases the warts quickly disappear after delivery, but the gonorrhœal warts show little tendency to do so, and may continue to grow for years. They are highly contagious.

Except as regards the form last mentioned, the etiology of warts is obscure. The flat wart, as has been said, is sometimes a result of senile degeneration of the skin; and Jamieson says he has, in some cases, traced the origin of the digitate wart to the use of rancid hair-oil or pomade.* The popular notion that the common wart is inoculable finds some support from facts observed by Payne† and others; and cocci and bacilli have been found in the little growths by Cornil, Kühnemann, and others, but the significance of these micro-organisms is doubtful.

Ordinary warts may be successfully dealt with by causing exfoliation by means of salicylic acid in the form of a plaster, or dissolving in collodion (ʒj ad ʒj), and then applying chromic acid to the base of the growth. If this fails, a strong caustic, such as acid nitrate of mercury, should be used with precautions to limit the range of its destructive action. A good method is to moisten the wart with strong acetic acid and when damp to apply the solid stick of nitrate of silver.

Digitate warts should be removed with the elastic ligature or the knife, the base being afterwards cauterised. Larger growths may require the galvanic cautery loop or the écraseur. Gonorrhœal warts if very luxuriant should be snipped off with scissors or destroyed with the galvano-cautery; if they are small they may be got rid of by applying chromic or glacial acetic acid. An important element in the treatment of these moist warts is to keep them dry and clean, and the surrounding parts protected from infection. The conditions (irritating discharge, etc.) keeping up the papillary hypertrophy must also be dealt with.

Corns are circumscribed thickenings of the

* "Diseases of the Skin," 1888, p. 375.
† *Brit. Journ. of Dermatology*, 1891, p. 185.

epidermis in the centre of which a horny peg or nail (hence the name, *clavus*) projects downwards among the papillæ so that its point rests on the sensitive cutis, causing sharp pain when driven inwards by pressure. Corns also "shoot" spontaneously, especially under the influence of barometric depression. The most common situations for corns are the outer surfaces of the little toes, the upper surfaces of the other toes, and the sole, especially the part where the weight of the body falls in walking. A softer but not less painful kind of corn often forms between the toes. Pressure and friction are the causes chiefly responsible for corns, but some persons show a much greater proclivity than others to their production, and they may be congenital or, at any rate, develop in early childhood on feet that have never been imprisoned in tight or ill-fitting boots. Anatomically, the condition is hyperplasia of the horny layers. Corns sometimes become inflamed and suppurate and break down into deep ulcers. The treatment consists in removing the corn by the application of salicylic acid in a plaster, or in the following form:

℞	Acidi salicylici	ʒj
	Extr. cannabis indicæ	grs. v
	Collodion	ʒj

This should be painted on with a camel-hair brush or a glass rod after the corn has been soaked in hot water and the top shaved off. After a day or two the thickened epidermis can easily be picked off. Another somewhat similar formula is that suggested by Vigier:

℞	Acidi salicylici	grs. xv
	Extr. cannabis indicæ	grs. viii
	Alcohol	♏xv
	Æther	♏xl
	Collod. flex.	♏lxxv

An excellent method, one which I have found most

successful, is to soak the corn with acetic acid and then rub it thoroughly with nitrate of silver. Cutting corns is not more effectual than the methods described, and has sometimes been followed, especially when performed by unqualified "chiropodists," by serious and even fatal complications. After treatment the part should be protected from pressure by perforated pads of felt plaster or amadou, and boots adapted to the shape of the foot should be worn.

Callosities differ from corns chiefly in the absence of the "nail." The thickening of the epidermis may be congenital, but is usually acquired. It occurs on parts exposed to pressure, as on the hands of working men, the fingers of harpists, etc. Callosities may also develop on the feet from the pressure of boots, or from going bare-foot. The condition seldom calls for treatment, but if any is required, the hypertrophied horny layer can be got rid of by means of salicylic acid plaster, or the substance recently introduced into dermatological practice by Jamieson under the name of "emol."*

Horny excrescences, resembling the horns of animals, have in rare cases been observed in human beings; they sprout generally from the scalp, the forehead, the temples, sometimes from the face, the extremities, the genitals, and the trunk. They are not painful, except when injured; occasionally they are the starting-point of malignant disease. They are rare under the age of forty, but have been observed in children. They are essentially overgrown

* This is a natural product found near Dunning in Perthshire, but refined and purified. It is a soft, impalpable powder, of a delicate pink hue, and is chemically allied to fuller's earth. It contains steatite as well as silica, alumina, with a mere trace of lime, and Jamieson thinks it is probably to the first of these ingredients that the substance owes its peculiar properties. For further details as to the therapeutic uses of "emol" see the *British Medical Journal* of August 26th, 1893, pp. 473-4.

warts (Crocker). In most cases they originate in sebaceous cysts; sometimes they arise in warts or scars, or a broken down molluscous tumour of the eyelids (Jamieson). The horn should be removed, and the base thoroughly cauterised.

CHAPTER XXII.

NEW GROWTHS (*concluded*).

II. Malignant.

The essential feature of a malignant growth is that in its extension it does not thrust aside the structures in which it grows, but destroys them and takes their place. A tumour may be locally malignant, that is, it may spread indefinitely from a given centre and recur after removal, not, however, becoming generalised in the system ; or it may be malignant in the full sense of the word, not only invading the surrounding parts, but giving rise to secondary formations in distant regions. Thus sarcoma is often only locally malignant, while carcinoma is typically malignant. The group of malignant growths affecting the skin includes Paget's disease, sarcoma (of various types), epithelioma, mycosis fungoides, and xeroderma pigmentosum.

Paget's disease.—This affection, the individuality of which was established by Paget* in a paper based on the study of fifteen cases, has, since that time, been the subject of many memoirs, the most recent, as well as the most important, being that of Wickham.† The first visible lesion is reddening of a patch of skin on or around the nipple, which has the appearance of an inflammatory hyperæmia, followed by branny desquamation. The infiltration soon deepens, producing a bright red granular, distinctly indurated surface, from which there usually oozes a sticky yellowish discharge. This may form crusts

* St. Bartholomew's Hospital Reports, 1874, p. 83, *et seq.*

† "Contribution à l'Étude des Psorospermes Cutanées et de certaines formes de Cancer," Paris, 1890.

and obscure the nature of the lesions, save at the border, which is characteristic, being sharply defined, indurated, and sometimes distinctly raised. In the later stages of the disease, itching and burning are the chief subjective symptoms. The process usually commences in the nipple and areola, but undoubted instances have been recorded of its attacking the scrotum* and penis.† After a period, which is usually about two, but has been known to be extended to twenty, years, deep-seated parts may become affected by the cancerous process. On the breast this shows itself by retraction and induration of the nipple, and the formation of a tumour in the substance of the gland. The histological changes consist in great proliferation of the deeper layers of the epidermis, and inflammatory infiltration of the corium. In the thickened epidermis the bodies described by Darier, Wickham, and Jonathan Hutchinson, junr., as psorosperms abound. Most English writers have looked upon the cancerous disease in which the affection terminates as having no closer connection with the original malady than as being the effect of prolonged irritation, but Thin regards the affection as cancerous throughout, and has suggested the name "malignant papillary dermatitis." More recently Wickham has attributed both the affection of the skin and the cancer in which it terminates to psorospermial infection. The disease occurs chiefly in women after the age of forty. As regards diagnosis, the bright red granular surface exposed after removal of crusts, the induration especially marked at the well-defined edge, with the intractable nature of the affection, distinguish it from chronic eczema, which it most closely resembles. The diagnosis is made certain by the microscopic examination of scrapings in iodised

* Crocker, Path. Soc. Trans., vol. xl., 1889.
† Pick, *Deutsch Med. Zeit.*, November 5th, 1891.

serum (Darier) or liquor potassæ (Hutchinson, junr.). The psorosperms appear as bright oval nucleated bodies, some still contained within the host cells, others surrounded by distinct capsules. The course of the disease is steadily progressive, and if left untreated it terminates in death. The treatment should consist of complete removal of the whole breast or part affected as soon as the diagnosis is established.

Cancer of the skin.—The forms of cancer commencing in the skin are the squamous epithelioma and the rodent ulcer. Cancer, secondary to malignant disease of the breast, often implicates the skin, either as a nodular or as a diffuse infiltration; the former is termed lenticular, the latter "cuirass-scirrhus." According to Besnier and Doyon these forms may occur primarily in the skin without previous mammary cancer. This has been observed only on the chest and in women. Although nearly all the cases described as melanotic cancer of the skin have, no doubt, been instances of melanotic sarcoma, yet cases of undoubted melanotic cancer occur elsewhere, and so it is presumable may now and then be met with on the skin. The cases described as such have been marked by the development of dark areas rapidly changing to tumours along the course of the lymphatics with early implication of glands. All cancerous tumours are chiefly characterised by overgrowth of a certain extent of epithelium at the expense of the surrounding tissues. Thus on the skin cancerous growths usually begin as slight papillary elevations, but if the process begins in a gland a nodule forms the starting-point. To take the more usual case, the papule becomes firmer and extends laterally, involving the skin immediately around it, the infiltration being evidenced by the characteristic firm raised border. Extension in depth is also effected by continual growth of the deeper layers of the rete

mucosum. The rapid growth of the epidermis at the sides and the base of the growth causes the central and superficial part to perish for want of nutrition, so that ulceration occurs in the middle while extension is going on in the depths and at the sides of the growth. If this is of moderate degree the surface remains covered by a certain thickness of epithelium, and there is no bleeding from denudation of vessels—in fact, no true ulceration, although there is a moist discharge which dries and forms crusts. If the necrotic process extends to the vascular tissues there is more or less hæmorrhage. When the lateral growth predominates the so-called discoid epithelioma is the result. This is typically seen in sweep's cancer of the scrotum; the surface is raised, with a steep border, and bright red with firm granular surface. If there is luxuriant formation of new tissue at the margin and deep ulceration in the centre, the crateriform ulcer of Hutchinson is the result. If the granulations are of large size the cancer is said to be of the papillary form. This phase may be so marked as to deserve the name "cauliflower growth," such as is met with on the external genitals and the os uteri. Frequently the appearance of the lesions is modified by some pre-existent morbid condition. Thus epithelioma may arise in a chronic ulcer, simple or syphilitic, or from lupus, in a wart or mole, etc. All forms of epithelioma have the following common characters: peripheral extension, infiltration and destruction of neighbouring parts, central ulceration and, in all cases with the exception of rodent ulcer, a tendency to form secondary growths in lymphatic glands, in the viscera, and elsewhere. Just as a cancer of the tongue which has its starting-point at the bottom of a deep fissure may widely infiltrate the organ before there is any appreciable induration or

ulceration of the surface, so an epithelioma of the skin beginning in the deepest part of the glands may widely infiltrate the corium and subcutaneous tissues before the surface is ulcerated. These deep-seated epitheliomata are the more dangerous on account of their anatomical connections. The amount of pain caused by cutaneous cancer varies with the structure involved. Cancer of the skin has a predilection for certain sites, such as the natural orifices—mouth, anus, vulva, and eyelids; moist parts, as the glans penis; exposed regions, as the face and hands; parts exposed to slight injuries, such as the feet, from friction of the boots—but it may occur in any part. As already said, a wart, a mole, or an ulcer may be the starting-point. An ulcerated and everted sebaceous cyst simulates in appearance a malignant growth, and also tends to terminate in veritable epithelioma. The malignant infiltration varies in rapidity in different cases, but, as with cancer generally, it may be said that unless speedily and thoroughly removed, sooner or later the disease causes the death of the patient by generalisation of the disease and exhaustion.

Cancers vary in structure according to the particular epithelium in which they arise. On the skin they are usually of the stratified squamous type, with well-marked cell nests in the central parts of the older lobules. These nests are due to the older cornified cells becoming flattened and arranged in concentric layers as the result of pressure. When the process starts in a tubular gland the glandular tubular type of epithelioma is the result. Not only is there overgrowth of epithelium, but the connective tissue is altered by inflammatory exudation and by formation of new vessels.

L. Pfeiffer * and other observers have described

* *Zeitschr. f. Hygiene*, 1888.

parasitic sporozoa in cutaneous as in other epitheliomata. Malassez and some others believe that there may be a causal relationship between these parasites and the growth. The question is still unsettled, but there is a growing tendency among pathologists to look upon malignant growths as parasitic formations. Early and free removal with the knife is the only safe treatment of cancer of the skin. When this is impossible the sharp spoon, followed by the actual cautery or chloride of zinc, gives some hope of a cure.

Rodent ulcer (Plate VIII. Fig. 2).—The individuality of rodent ulcer cannot be explained better than in the words of A. Jacob,* by whom its claim to be considered a distinct clinical entity was first established. "The characteristic features of this disease are the extraordinary slowness of its progress, the peculiar condition of the edges and surface of the ulcer, the comparatively inconsiderable suffering produced by it, its incurable nature, unless by extirpation, and its not contaminating the neighbouring lymphatic glands." The affection is a form of epithelioma. The initial lesion is a small circumscribed nodule in the skin, flat and depressed in the centre, with unbroken cuticle, firm to the touch, and of a dull brownish-red colour. It often remains for some years without undergoing any perceptible change, but at length the cuticle covering it is broken, and an ulcer with depressed granular centre and infiltrated border is formed. The ulcer becomes slowly larger and deeper; it infiltrates and destroys the subjacent tissues, attacking and replacing bones as well as soft tissues. Sometimes it spreads superficially, with cicatrisation of the centre, but usually the destruction of the parts beneath it is more marked in the centre, so that a crater-like form results. It is remarkable

* Dublin Hospital Reports, 1827, p. 232.

that almost every case of rodent ulcer has its seat within an area bounded by a line drawn from the uppermost part of the pinna to the root of the nose, and another drawn from the lobule of the ear to the columella of the nose. Cases are, however, recorded in which it has been met with in other parts, *e.g.* on the back of the hand.

The structure is that of an epithelioma, the cells being smaller than those of the ordinary epithelioma, and only exceptionally being arranged in cell nests. Most histologists are agreed that it begins in the deepest layers of the rete mucosum, but others have traced it variously to the sweat glands, the sebaceous glands, and the hair follicles. Norman Walker* maintains that there is no connection between rodent ulcer and squamous epithelioma, except the fact that both are largely composed of epithelial cells. He argues that its type and the arrangement of its cells correspond to that described as glandular or tubular carcinoma. Its origin must therefore be looked for in glands, and as a matter of fact he has generally found that it arose from the sweat glands. In one case he was doubtful whether it did not originate in sebaceous glands.

The etiology of rodent ulcer, like that of cancer in general, is not yet definitively settled. Dubreuilh and Wickham have described psorosperms in association with the process. Like cancer in general, rodent ulcer is a disease of old age, but cases are not rare about thirty, and have been recorded in patients under twenty. Norman Walker's† statistics give the average age for the commencement of the disease as forty. The affection occurs about equally in the two sexes. Rodent ulcer is distinguished from other cancers by the limited amount of new growth, by the

* *Brit. Journ of Dermatology*, Sept., 1893.
† Loc. cit.

slowness of its progress, and by the absence of glandular infection. From lupus vulgaris it is differentiated by the absence of apple-jelly nodules, by the age of the patient, and the mode in which it begins. From tertiary syphilitic ulcers it is distinguished by the granular base, the usually solitary character of the ulcer, and the resistance to treatment. The practitioner must, however, be on his guard against being misled by the temporary improvement that sometimes takes place.

If the growth be not freely removed, it will continue to progress till it ends in death. Hideous deformity may be produced by the extension of the ulcer; and if sensitive parts such as the eyeball are affected, the pain may be so great as to render life almost unendurable. The treatment is free excision wherever this is practicable. The actual cautery followed by caustics may sometimes effect a cure. Even where the disease has been allowed to progress so far that neither of these measures is applicable, the progress of the disease may be retarded by the application of strong antiseptic dressings.

Sarcoma of the skin.—The skin, according to Babes, is the most frequent source of sarcoma; but, as Kaposi points out, in the majority of cases the process in the skin is secondary to growths commencing in the lymphatic glands or the deeper structures. A tumour which arises in previously healthy skin, or in a mole or wart, or at the site of an injury, which is soft and reddish from its vascularity (a marked feature of sarcoma), or bluish from its pigment, and after a possible period of slow growth rapidly enlarges, projects above the surface, and readily ulcerates and bleeds, is probably a sarcoma. The clinical forms of sarcoma of the skin are so various that it is impossible to describe them all. The following is only a general outline of the

disease in its commoner varieties.* Sarcomata vary greatly in consistence, the spindle-celled tumours being fairly firm, the small-celled ones soft, with all intervening grades of density. The description would apply also to mycosis fungoides in its later stages, but that affection may be regarded as a form of sarcoma (Kaposi). When a sarcoma arises in a congenital papilloma its surface is frequently warty, and the tumour is then usually melanotic. In colour also sarcomatous tumours vary greatly; the pigmented varieties are bluish-black or brown; the non-pigmented, reddish in hue. Sarcoma may arise in any part of the body; but moles, warts, and pre-existing ulcers are all predisposed to sarcoma. Hutchinson has drawn attention to a melanotic sarcoma which begins at the side of the nail, and for a time shows nothing more than a blue mark, which afterwards becomes a tumour of extremely malignant character. Very frequently cutaneous sarcomata are exceedingly numerous, and may form rapidly over the whole body (Fig. 14). Multiple pigmented sarcomata of the skin are of rare occurrence. According to Kaposi they begin on the hands and feet, and gradually extend to the head and trunk, which they reach in two or three years. They are brown in colour, owing to hæmorrhage taking place in them, and form groups of rounded tumours, some of which may disappear, leaving pigmented scars. These cases have always proved fatal, from the formation of secondary growths in the viscera. They owe their peculiarities to the rapidity of their formation, which leads to hæmorrhage and determines the rapid clinical course.

Sarcoma may be taken as a type of malignant

* For fuller information on the subject the reader is referred to papers by Funk of Warsaw in the *Brit. Journ. of Dermatology*, vol. i., 1888-89, pp. 143 and 182.

growth. Its chief characters are unlimited local extension, with infiltration and destruction of neighbouring

Fig. 14.—Multiple Sarcoma of the Skin. (*After* Schwimmer, "International Atlas of Rare Skin Disease," Plate IV.)

tissues; and, when situated on skin and mucous membranes, rapid ulceration. Secondary deposits in

sarcoma are usually due to the growth invading and projecting into veins, in which detached particles are carried to the heart, lungs, etc. Extension along lymphatics is also met with, and the glands may be enlarged throughout the body. Subsidence and scarring are very rare. Congenital sarcoma, sarcoma appearing early in life, and sarcomatous tumours of the melanotic variety, are usually highly malignant.

A round-celled sarcoma differs but little in structure from a mass of granulation tissue. The blood-vessels have thin walls, and active budding takes place from the cells which constitute their walls. All sarcomata are remarkably vascular, and the walls of their vessels being thin, hæmorrhages are frequent. The central parts of sarcomata tend to degenerate, like those of gummata and tubercular masses; hence anfractuous cysts are common. Melanotic sarcomata owe their special features to pigment granules being deposited in some of the sarcoma cells. When there is a formation of spindle-cells parallel to the long axis of the vessels of the tumour, while round cells collect in the spaces so formed, the "alveolar sarcoma" is constituted. In one variety (lipomatous) the cells become loaded with fat. Until Virchow established the differential characters of sarcomata as compared with epitheliomata, these two groups were included together as cancers.

Sarcoma is markedly infective in the body when once established there. It is commonest at and after middle age, but may occur in childhood. Ulcerated sebaceous cysts often present the appearance of malignant growths, and indeed, if long neglected, may form starting-points of such tumours. The prognosis of sarcoma is extremely bad, recurrence being the rule, however freely removal be carried out. The only treatment is complete removal at

the earliest possible moment, whenever this is practicable. Lassar, Köbner, and Shattuck have reported good results from subcutaneous injections of Fowler's solution, diluted with two parts of distilled

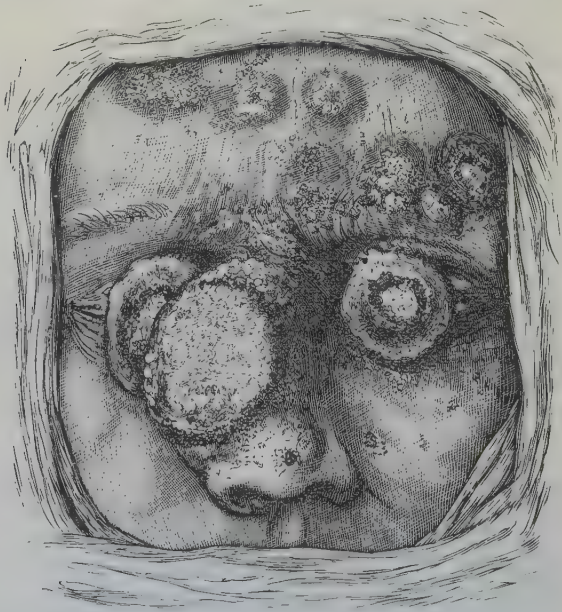

Fig. 15.—Mycosis Fungoides of the Face. (From a replica of the model No. 1665 in the Hôpital St. Louis, Paris.)

water, beginning for an adult with ♏iv, increased after a time to ♏vj.

Mycosis fungoides (Figs. 15, 16).—To this now well-recognised disease very various names have been given, but the one used here was applied to it by Alibert, as indicative of the naked-eye appearance, and not as

a pathological description.* The lesions in the early stage are dull-red or livid patches, varying in size from that of the finger-nail to that of the palm of the hand, with borders sometimes well marked, sometimes fading off, occasionally flat, but more often raised or thickened. The patches are smooth and dry at first; later they become scaly, and at last they may be moist or covered with crusts. From the appearance of the lesions, Erasmus Wilson termed the affection "eczema tuberculatum," and to this first stage of the disease French dermatologists have given the name "eczéma prémycosiforme." At this stage the disease is often mistaken for eczema, urticaria, or erythema. These early phenomena may be slight or absent. In a later stage the moist eczematous surface becomes more and more infiltrated, so that tumours project above the level of the skin. They may be as small as a pea, or as large as an apple (A. Neisser). They are firm and lobulated, broader at the free end than at their attachment (somewhat resembling tomatoes, whence the term "fungoides"). Their surface may be smooth and moist, or else excoriated and covered with crusts.

The lesions are not arranged according to any plan. Any part of the body may be affected. They have been observed on the mucous membranes of the mouth, the uvula, and the soft palate. The eczematoid stage may last for many months or even years before tumour formation begins. This is not always regularly progressive, for many of the patches may disappear whilst new ones are forming around them. As a rule, however, progressive thickening occurs, a papillated condition (lichenoid plaques) often being observed before fungation. Fresh tumours may

* For a history of our knowledge of this disease, which begins in 1833 when Alibert first described it, see Pélissier, "Mycosis Fongoïde ou Lymphadénie Cutanée." Thèse de Montpellier, 1889.

develop on the site of previous tumours that have disappeared. On the whole the disease steadily progresses and wears out the patient, who becomes

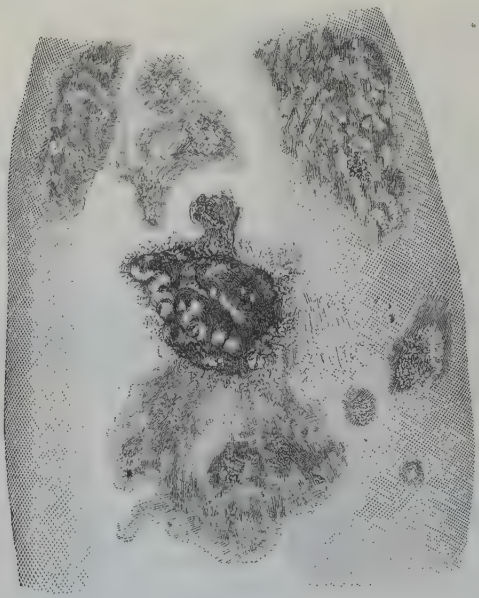

Fig. 16.—Mycosis Fungoides. Fore-arm of same case as Fig. 15. (From a replica of the model by Baretta in the Hôpital St. Louis, Paris.)

emaciated and dies of pneumonia, diarrhœa, or some other complication. In one case, however (Bazin), recovery is recorded to have taken place after an attack of erysipelas. Sometimes the first or eczema stage of the disease is wanting, and the tumour formation is the first evidence of the malady. The duration of the disease is usually from six months to

as many years, or even longer. In the early stage the symptoms are intense itching, and sometimes burning pain, causing loss of sleep and impairment of health. As a rule, however, the general health remains fairly good until many tumours have formed. The growths are devoid of sensibility. The lymphatic glands may be enlarged throughout the body, as in lymphadenoma. In the early stage the affection may be indistinguishable from some forms of eczema and other eruptions. In obstinate eczematous conditions the possibility of the case being one of mycosis fungoides should be borne in mind. The tumours are composed of small round cells, supported by scanty fibrous tissue, thus resembling lymphadenoma. Indeed, some authors regard the affection as a lymphadenoma of the skin; others look upon the new growth as granulation tissue formed by an infection of micrococci. Like that of lymphadenoma, the direct cause of the affection is unknown. The extremes of age are 20 to 60 years, but it is commonest between 40 and 50. Males are more frequently attacked than females. The general aspect of the affection, like sarcoma and cancer, suggests a parasitic origin; but this, as yet, has not been proved. Payne* has shown that the micrococci, described by various authors, are probably accidental. Quite recently Posada,† working under Wernicke, has described coccidia in the lesions. Except in the one case already referred to, the affection has always ended in death. The time has been as short as nine weeks and as long as thirty years, as in a case recorded by Dubreuilh.‡ No treatment appears to have any influence on the process. All that can be done is to relieve symptoms, and conserve

* Path. Trans., vol. xxxvii. (1886), p. 22.
† Wernicke, *Centralb. für Bakt.*, December 28th, 1892.
‡ *Ann. de la Policlinique de Bordeaux*, March, 1893.

the health as far as possible by general tonic measures. In a case under my care the use of resorcin ointment (grs. xx to ℥j) was followed by considerable local improvement.

Kaposi's disease, or xeroderma pigmentosum, is an extremely rare affection which was first described by Kaposi. In England the first cases described were those of Crocker,* to whom I am indebted for permission to reproduce an illustration of one of them (Fig. 17), which gives a good idea of the appearance of the disease. It is characterised by the formation of numerous tumours, which, though apparently benign in the early stage of their development, run a malignant course, and, after extensive destruction of tissues, cause the death of the patient by exhaustion. The initial lesions are small pigmented spots, resembling freckles, but rather darker, which appear chiefly on the face, neck, arms, and legs, the area of distribution corresponding pretty exactly with the parts of the skin often left uncovered in infancy. Erythematous patches or papules, like those of the measles eruption, sometimes precede the "freckles." The latter usually come and go for a time, disappearing in the winter to return in the summer; after a time they become permanent and the colour tends to deepen till they are often quite black. They are irregular in outline, vary in size from a pin's head to a pea, and are generally thickly crowded together, especially on the face. For some time the condition suggests nothing more than excessive freckling, but by-and-by further lesions appear among the "freckles" in the form of white glazed atrophic spots, which often run together forming scar-like areas; telangiectases, stellate, and striate; and superficial ulcers discharging pus which is auto-inoculable, and which dries into

* Med. Clin. Trans., 1884.

yellow crusts under which healing takes place, followed by a good deal of cicatricial contraction. Lastly, after some years small warty-looking growths develop on the "freckles." This event marks the entrance of the disease on a more formidable phase of its evolution. Tumours form and ulcerate, producing fungous masses, the process extending both widely and deeply, and destroying every tissue that comes in its way. In a case recorded by M'Call Anderson* the whole of the face and part of the neck were eaten away, the ulcerative process starting from three foci (nose, lip, and cheek) having resulted in the excavation of a huge pit, the greatest depth of which in the face was about $1\frac{1}{2}$ inch, in the neck about $\frac{3}{4}$ inch. "The destruction involved the external auditory canal and the lower portion of the temporal bone, the zygoma, which had entirely disappeared, the posterior half of the lower jaw, including the condyles, the palatal, and the superior maxillary bones. In the upper part of the floor of the ulcer, behind the right orbital plate, there was an opening admitting the point of the finger, into which the probe passed easily 1 inch upwards and 3 inches in a backward direction. . . . . On the removal of the brain the anterior part of the under surface of the temporo-sphenoidal lobe was found to communicate with the floor of the ulcer through the above aperture. Almost the entire floor of the middle fossa was ulcerated away. . . . The gap in the middle fossa measured 2 inches by $1\frac{1}{2}$ inch. There was also a large gap in the lower part of the frontal bone measuring $1\frac{1}{2}$ inch by 1 inch. The anterior part of the ethmoid and of the nasal bones was destroyed. . . . . There was no lesion in any of the other organs." The fact last mentioned agrees with what is recorded

* *Brit. Journ. of Dermatol.*, December, 1892. The paper is illustrated.

in the majority of other cases, generalisation of the disease rarely if ever occurring. This accounts for

Fig. 17.—Kaposi's Disease, or Xeroderma Pigmentosum. (From a case under the care of Dr. Crocker, reported in the Med. Chir. Transactions, 1884.)

the relatively slight effect it has on the health until near the end, when emaciation (from difficulty of taking food) and exhaustion supervene, and a slight hæmorrhage may close the scene.

Nothing is known as to the etiology of this terrible affection, beyond the fact that exposure to the sun may be an exciting influence,* but it is clear that some special predisposition must exist. The disease generally attacks two or more members of the same family, often selecting its victims exclusively from one or other sex. Both sexes are equally liable. It generally begins within the first two years of life, but it has been known to commence in middle age. The pathology of the disease is very obscure. Kaposi believes that the change commences in the papillary body and epidermis, extending thence to the true skin. The primary pigmentation is due to atrophy. The tumours are epitheliomatous in structure, a fact which suggests that the process is analogous to the cancerous degeneration that not infrequently takes place in pigmented moles in elderly persons.

When the disease is fully established it tends steadily to a fatal issue. The commencement of tumour-formation, which may be called the patient's death-warrant, has, however, been known to be delayed for many years, but this is altogether exceptional.

The treatment can only be palliative. Autoinoculation of pus from the early ulcers should as far as possible be prevented, and the tumours should be excised as soon as they are noticed. The early and thorough application of this method offers the only chance of checking the disease.

* In a case recorded by Elsenberg (*Arch. f. Derm. u. Syph.*, 1890, p. 49), exposure to the sun on a hot summer's day at the age of six months was immediately followed by an eruption of small erythematous patches on the face, neck, and hands. These soon became transformed into "freckles," and the disease afterwards followed the line of evolution indicated in the text.

CHAPTER XXIII.

MALFORMATIONS.

There remain to be considered certain conditions which, while clearly not belonging to any of the categories in which the diseases already described have been provisionally grouped, it is difficult to classify on the basis of any distinctive feature common to them all. Inasmuch as—though not always, strictly speaking, congenital—they depend on an error of development of some kind, I have ventured to bring them together under the head of "malformations." This term must not, however, be understood as implying a definition; it is used merely as a designation, neutral and temporary in character, for conditions which await the dawn of a fuller knowledge of their pathogenesis before they can be finally classified. These conditions include ichthyosis, with its degrees and varieties, tylosis, sclerema neonatorum, œdema neonatorum, and albinism.

Ichthyosis is an affection characterised by dryness of the skin, which becomes scaly (hence the name, from ἰχθύς, a fish) and rough, and often warty. The affection occurs in three principal forms, distinguished as xerodermia, ichthyosis simplex, and ichthyosis hystrix. The two former, though clinically distinct, are pathologically identical, being the results of a process which manifests itself in varying degrees of intensity, of which they may be taken as the extremes. The third, though belonging to the same nosological genus, is a distinct species. All three are, as a rule, congenital, though the condition is seldom noticed till some little time after birth; in exceptional cases it is acquired.

Xerodermia, which is the commonest form of ichthyosis, is often nothing more than a dry scaly condition of the skin; little or no sweat is secreted, and the hair follicles, especially on the extensor aspects, project on the surface of the skin, giving to the hand, when passed over it, the feeling of a nutmeg grater (*keratosis pilaris*). In the more marked cases the epidermis is distinctly thickened, and the natural lines are better defined than in normal skin (Plate II. Fig. 1).

Ichthyosis simplex is characterised by extreme scaliness of the skin, which sometimes appears to be covered with a dense horny cuirass, like the hide of a crocodile. The colour of the scales varies according to their age and position from white to dark green and black. The whole skin is affected, but in widely different degrees of severity, the extensor surfaces, especially the elbows and knees, nearly always suffering most; occasionally warty growths develop in these situations. On the other hand, the flexures and the palms and soles are comparatively little affected, and the face is also more or less spared. The hair participates in the general dryness, and becomes dull and brittle; the nails break easily. The sebaceous as well as the sweat secretion is deficient, though neither is entirely suppressed; and patients are usually better in summer, when the glands act more freely.

The most marked subjective symptom is an exaggerated sensitiveness to cold, but itching is also complained of. The skin "chaps" readily and deeply, and is particularly prone to become the seat of eczema, which adds greatly to the sufferings of the patient.

Acquired ichthyosis is seldom general, and has usually been seen in association with neuritis or some central nerve disease.

Ichthyosis hystrix (ὕστριξ, a porcupine) is a rarer affection than those just described (Plate III. Fig. 1). It is never universal, but is occasionally seen in association with xerodermia. Its distribution often appears to correspond to that of the cutaneous nerves, the lesions being arranged longitudinally on the limbs and transversely on the trunk. Unna, however, thinks it follows the embryonic lines of fissure. The lesions are small papillary growths with horny tops, which stud the skin as with tiny nail-heads; these may develop into large warty masses or concretions like limpet shells, rising sometimes to a height of half an inch or more above the level of the surrounding skin. The affection may be very widespread, and in situations where the warty projections are liable to injury may cause a good deal of inconvenience, but otherwise it gives rise to no symptoms. When localised in the track of a particular nerve it is sometimes described under the name of papilloma neuroticum.

All varieties of ichthyosis are, as a rule, congenital, though there is usually no very obvious abnormality in the skin till some little time after birth. In some cases, however, the skin is seen to be peculiarly smooth and glazed as soon as the vernix caseosa is removed; and in others a remarkable condition has been observed in the skin of the fœtus, which is covered with thick epidermic plates, separated by vertical and horizontal fissures into square patches, like the parti-coloured garment of Harlequin ("harlequin fœtus").* Ichthyosis is always hereditary. Both sexes are equally liable to the affection. Beyond the fact that the condition clearly depends on an error in development, nothing is known as to its pathogenesis. The process appears to consist in increased formation

* See a case recorded by Bland Sutton (Trans. Med. Chir. Soc., vol. lxix., 1886), with coloured illustration and bibliography.

of epithelial cells, which undergo rapid keratinisation. Tommasoli* has found lesions in the cutis as well as the epidermis, as indicated by the presence of round or fusiform cells, dilated vessels, and large numbers of oval or flattened nuclei. He is therefore inclined to regard ichthyosis as the expression of a catarrhal condition of the skin. Hutchinson thinks ichthyosis "an intensified form of psoriasis, beginning at a very early period, and deriving peculiarities accordingly." With that opinion I cannot, however, agree.

The disease can hardly be mistaken. There is little prospect of a cure being effected, but treatment can generally alleviate the condition. The indications are to remove the scales, and keep the skin soft and flexible. This is best done by the free use of soft soap with warm baths, alkaline or bran, and vigorous friction. Inunction with lanolin or other fatty material should follow the cleansing process. The treatment must be regularly persevered with, otherwise any advantage gained will speedily be lost. The growths of the hystrix variety should be removed, if convenient. Salicylic acid will suffice for the smaller ones, but the large growths must be excised or scraped away.

Tylosis is a condition affecting the palms and soles, and consists in thickening of the epidermis into a horny plate, generally dry and smooth on the surface, sometimes worm-eaten. In the foot only the part that comes in contact with the ground in walking is affected. The condition is as a rule congenital, but may be the result of the long-continued administration of arsenic, or of hyperidrosis. In the former case the affection begins with the formation of papules, which develop into nodules and by-and-by into a uniform callosity; in the latter the thickening

* *Giorn. Ital. delle Malattie Veneree e della Pelle*, Sept., 1889, and March, 1891.

commences round the sweat follicles, and the affected epidermis is sodden as well as thickened. Both sexes are equally liable and the condition is sometimes hereditary.

Horny thickening of the palms and soles may be a secondary condition, due to inflammatory processes, such as eczema, psoriasis, syphilis, etc. These forms of tylosis have been referred to in connection with the several diseases of which they are the result.

In congenital cases little good can as a rule be looked for from treatment, but the persevering use of salicylic acid in ethereal solution (10 per cent.) or in a plaster-mull has been successful in Unna's hands. The acquired condition may be dealt with in the same way. Ichthyol, combined with salicylic acid in an ointment, has been found satisfactory by Brooke.

Sclerema neonatorum is a peculiar induration of the skin which is generally congenital, but occasionally becomes developed within a few days after birth. The skin becomes waxy in appearance, hard, tense, and cold, the baby lying motionless as if its face and limbs were fixed in death. The body can be lifted with one hand as if it were frozen. The temperature is subnormal, the breathing very slow and feeble. The child cannot open its mouth to suck, so that what little flicker of life there may be is speedily extinguished. The condition may be acquired consecutively to acute wasting illness (diarrhœa, pneumonia, etc.), or may be the result of malnutrition. According to Parrot, the anatomical changes are desiccation of the skin, with thickening of the layers and diminution of the fat, but no true sclerosis.

A somewhat similar condition is **œdema neonatorum,** which is almost unknown in England. It is said to commence on the third day after birth. The œdema begins in the lower limbs and spreads upwards. The skin has a doughy feel and pits with

difficulty. The child is drowsy from the first, and quickly dies of collapse, diarrhœa, convulsions, or other complication. Constitutional feebleness, bad feeding, and exposure to cold are considered to be the causes of the condition. The anatomical changes are yellow serous effusion into the connective tissue with great density of the subcutaneous fat.

Both in sclerema and œdema the prognosis is bad, but less so in the latter than in the former condition. If sclerema is incomplete, recovery may take place. The indications for treatment in both cases are to raise the temperature to the normal standard and to improve nutrition. The child should be wrapped in cotton wool or kept in an incubator such as Tarnier's *couveuse* and fed artificially. The circulation should be stimulated by friction.

Albinism is congenital absence of pigment in the skin and other tissues, and may be general or partial. The skin for the most part is perfectly white, but where it is thin enough for the vessels to show through it is pinkish. Owing to the same cause the iris looks pink, and there being no screen of colouring matter in front of the retina, photophobia exists. Albinism is often, but by no means invariably, associated with delicacy of body and some mental inferiority. When the condition is partial irregular patches of white skin are seen here and there, sometimes arranged in correspondence with the distribution of a particular set of nerves, but seldom symmetrical. The hairs on the unpigmented spots are white. Albinism is more common in coloured than in white races, and is generally hereditary. The condition is endemic in some tropical regions.

INDEX.

Abscess, Subcutaneous scrofulous, 361
Acanthosis nigricans, 512
Acarus scabiei, 289
Achorion Schoenleinii, the fungus of favus, 320
Acne, 340
——, Bromic, 186
——, Cheloid, 340, 465
——, Confluent, caused by bromides, 187
——, ——, caused by iodides, 190
—— cornea. (*See* Darier's disease)
—— frontalis, 346
—— indurata, 340
—— keratosa, 347
—— necrotica 345
—— rosacea. (*See* Rosacea.)
—— tar, 201
—— varioliformis, 345
—— vulgaris, 340
—— ——, Causes of, 341
—— ——, Treatment of, 343
Acnitis, 347
Aconite, Eruptions caused by, 199
Acrodynia, 87
Acropompholyx. (*See* Cheiropompholyx.)
Actinomyces in Madura foot, 18
Actinomycosis, 351
Addison's disease, Bronzing of skin in, 141
Adenoma sebaceum, 482
Albinism, 545
Aleppo boil, 347
Alopecia, 469
—— areata, 471
—— ——, Treatment of, 474
—— ——, Syphilitic, 397
——, Treatment of, 469
Amboyna button (yaws), 435
Anæsthesia, 59
Angiokeratoma, 492
Angioma, Cutaneous, 490
——, Infective, 495
Angio-myoma, 488
Angio-neuroses, 59
Angio-neurotic process, The, 54
Anidrosis, 460
Anthrax, 339
Antifebrin, Eruptions caused by, 199
Antimony, Eruptions caused by, 199
Antipyrin, Eruptions caused by, 199
Antitoxin eruption, 206
Appendages, epidermic, Diseases of, 444
Areola, 12
Argenti nitras, Eruptions caused by, 199
Arnica, Eruptions caused by, 200
Arsenic, Epithelioma caused by prolonged use of, 194
——, Eruptions caused by, 193
——, Keratosis caused by, 193
——, Peripheral neuritis caused by, 194
Artificial eruptions, 178
Aspergillus niger on skin, 18
Asthma, its association with eczema, 236
Atrophy of skin, Localised, 146
Atropine, Eruptions caused by, 195

Bacillus fœtidus, 19
—— of anthrax, 339
—— of leprosy, 433
—— sycosiferus fœtidus, 331
—— tuberculosis, 357
Bacteria, Pyogenic, normally present on skin, 15
—— in eczema seborrhoicum, 19
Bacteriology of the skin, 13
Bacterium fœtidum in bromidrosis, 457
Bakers, Skin eruptions in, 180
Baldness, 469
——, Treatment of, 469
Balsam of Peru, Eruptions caused by, 200
Bazin's disease, 360
Bed-sore, 72
——, Charcot's, 147
Belladonna, Eruptions caused by, 195
Bilharzia hæmatobia, 302

Biskra button, 347
Blebs, Definition of, 12
Boil. (*See* Furunculus.)
——, Aleppo. (*See* Furunculus Orientalis.)
——, Delhi. (*See* Furunculus Orientalis.)
Boracic acid, Eruptions caused by, 200
Borate of sodium, Eruptions caused by, 200
Brain lesions in relation to skin affections, 141
Bromide eruptions, 186
Bromidrosis, 457
Bronzing of skin in Addison's disease, 141
Brooke's ointment, 378
Bug, Lesions caused by, 301
——, harvest, Lesions caused by, 301
Bullæ, Definition of, 12

Cade oil, Eruptions caused by, 200
Calculi, Cutaneous, 453
Callosities, 519
Cancer of the skin, 523
Cannabis indica, Eruptions caused by, 200
Cantharides, Eruptions caused by, 200
Carate. (*See* Pinto.)
Carbolic acid, Eruptions caused by, 200
Carbuncle, 336
——, Treatment of, 338
Chancres, Differences in characters of, 392
——, Extragenital, 392
Cheiropompholyx, 108
——, Treatment of, 172
Cheloid, Acne, 465
—— (Addison). (*See* Sclerodermia.)
——, Multiple, 485
——, Scar, 484
——, Spontaneous, 484
Chemiotaxis, 3
Chemists, Skin eruptions in, 180
Chickenpox eruption, 34
Chigoe, Lesions caused by, 302
Chilblain, 75
Chloasma uterinum, 141
Chloral, Eruptions caused by, 194
Chromidrosis, 458
Chrysarobin, Eruptions caused by, 200
Chrysophanic acid. (*See* Chrysarobin.)
Cicatrix, Hypertrophied, 484
Classification of skin affections, 20
—— ——, Principles of, 23
——, Alibert's, 20
——, Auspitz's, 22
——, Bateman's, 21
——, Bazin's, 22
——, Bronson's, 22
——, Frank's, 21
——, Hebra's, 22
——, H. Mercurialis's, 20
——, Plenck's, 21
——, Turner's, 20
——, Unna's, 23
——, Willan's, 21
——, Erasmus Wilson's, 21
Coco (yaws), 435
Colloid milium, 507
Comedones, 454
——, Grouped, 455
Condyloma, 398
Corns, 517
Corona seborrhoica, 225
—— Veneris in secondary syphilis, 397
—— —— in tertiary syphilis, 403
Copaiba, Eruptions caused by, 195
Crateriform ulcer, 524
Craw-craw, 302
Croton oil, Eruptions caused by, 201
Crustæ. (*See* Scabs.)
Cubebs, Eruptions caused by, 195
Cuirass scirrhus, 523
Cysticercus cellulosæ cutis, 302
Cysts, Dermoid, 482
——, Sebaceous, 481

Dandruff, 445
Darier's disease, 510
Dartres, Alibert's, 21
"Dead fingers," 142
Delhi boil, 347
Demodex folliculorum, 342, 454
Dermatitis, Artificial, 179
—— caused by irritants, 4
——, Exfoliative, 256
—— herpetiformis, 100
—— ——, Treatment of, 171
——, Malignant papillary. (*See* Darier's disease.)
—— papillaris capillitii, 464
—— repens, 144
—— toxic, 182
—— venenata, 178
Dermoid cysts, 482
Desquamation, nature of process, 13
——, its analogy to catarrh of mucous membrane, 6

Devergie's disease, 264
Diagnosis, Principles of, 25
——, Process of exclusion in, 30
Diphtheria bacillus, Infection of skin wounds by, 18
Dissection wounds, 340
Distoma hepaticum, Embryos of, in the skin, 302
Dracunculus Medinensis. (*See* Guinea-worm)
Drug eruptions. (*See* Eruptions.)
Duhring's Impetigo, 328
Dyers, Skin eruptions in, 180
Dysidrosis. (*See* Cheiropompholyx.)
—— of face, 463

Ecchymoses, Definition of, 11
Echinococcus hydatid in skin, 302
Ecthyma, 328
Eczema, 208
——, a catarrh of the skin, 209
——, Clothing in, 254
——, Complications of, 229
——, Diagnosis of, 230
——, Diet in, 253
—— distinct from artificial dermatitis, 210
——, distribution and regional peculiarities, 216
——, Etiology of, 232
—— folliculorum, 227
——, Hydrotherapy in, 254
—— in children, 220
—— in elderly persons, 222
—— in infants, 221
—— in middle life, 222
—— in the two sexes, 219
——, Influence of climate on, 254
——, Influences modifying, 216
——, Internal remedies in, 244
—— intertrigo, 212
——, its transformation into mycosis fungoides, 215
——, Local treatment of, 247
—— madidans, 216
—— marginatum, 308
——, Nervous, 227
—— of arms, 219
—— of ear, 218
—— of face, 218
—— of feet, 218
—— of genitals, 219
—— of head, chronic, 225
—— of lips, 217
—— of nails, 218
—— of nipple, 218
—— of nostrils, 217
Eczema of scalp, 217
—— of umbilicus, 219
—— of wrists, 218
——, Pathology of, 240
——, Prognosis of, 240
——, Reflex neurotic, 228
—— rimosum, 218
—— rubrum, 216
——, Sea bathing in, 254
——, Seborrhœic, 224
——, Special forms of, 222
——, stages in process, 214
——, Superstition as to "driving in," 243
—— sweat, 226
——, Symptoms of, 228
——, Treatment of, 242
—— tuberculatum, 533
Eczéma erysipélatoïde recidivant des arthritiques, 238
—— *prémycosiforme*, 533
Electrolysis in hirsuties, 465
Elephantiasis Arabum, 352
"Elephantoid fever," 353
Enteric fever rash, 32
Epithelioma adenoides cysticum, 508
——, Discoid, 524
——, Glandular tubular, 525
——, Squamous, 525
Ergot, Eruptions caused by, 201
Eruptions, Antitoxin, 206
——, Artificial, 178
——, ——, caused by external agents, 178
——, ——, caused by internal agents, 182
——, ——, caused by vegetable irritants, 179
——, ——, General characters of, 179
——, Bromide, 186
——, Drug, 182
——, ——, Behrend's theory, 183
——, ——, Farquharson's theory, 182
——, ——, their angio-neurotic character, 184
——, ——, Treatment of, 206
——, Feigned, 35, 180
——, How to study an, 26
——, Iodic, 189
——, Trade, 180
——, Tuberculin, 205
——, Vaccination, 203
Erysipelas, Diagnostic features of, 35
Erythema, 68
—— annulare, 79

Erythema atrophicans. (See Lupus erythematosus.)
——, Balsamic, 195
—— fugax, 71
—— gyratum, 79
——, Hyperæmic, 70
—— induratum scrofulosorum, 360
——, Inflammatory, 75
—— intertrigo, 71
—— iris, 80
—— keratodes, 76
—— ——, Treatment of, 168
—— marginatum, 79
—— multiforme, 77
—— ——, Treatment of, 163
—— nodosum, 82
—— ——, Treatment of, 169
—— papulatum, 79
—— paratrimma, 72
—— ——, Treatment of, 167
—— pernio, 75
—— ——, Treatment of, 167
——, Rubeoloid, 74
——, Scarlatiniforme, 72
—— ——, Treatment of, 157
——, Scarlatinoid, 75
—— simplex, 70
—— ——, Treatment of, 166
—— solare, 71
—— tuberculatum, 79
Erythrasma, 325
Examination of patient, 25
Excoriation, 5
Excrescences, Horny, 519

Face, Diagnosis of affections of, 41
Farcy buds, 441
Favus, 320
—— fungus, 320
—— ——, Varieties of, 322
—— griseus, 322
—— sulphureus celerior, 323
——, Treatment of, 324
Feigned eruptions, 35, 180
Fibroma, 486
——, Diffuse, 487
—— molluscum, 486
Fibromata, Hard, 487
Fibro-myoma, 488
Filaria sanguinis hominis in Elephantiasis Arabum, 353
Fissures, 13
Flannel rash, 452
Flea, Lesions caused by, 301
Fœtus, Harlequin, 542
Folliculitis decalvans, 464
Framboesia (yaws), 435
"Freckles," 512
Frost-bite, 76
Fungus foot of India, 350
Furunculosis, 333
——, Treatment of, 336
Furunculus, 333
—— Orientalis, 347
——, Special form of, in sweat coils, 334
——, Treatment of, 335

Gangrene, Diabetic, 144
——, Hysterical, 145
——, Symmetrical, of extremities, 142
Genitals, Diagnosis of affections of, 46
Glanders, 441
——, Prevention of, by inoculation of mallein, 443
Glands, sebaceous, Diseases of, 444
——, sweat, Diseases of, 455
"Glossy Skin," 145
Goats, Stings of, 302
Growths, Benign, 480
——, Cauliflower, 524
——, Malignant, 521
——, New, 480
Guinea-worm, Lesions caused by, 302
Gumma, Anatomy of, 403

Hæmato-lymphangioma, 497
"Hæmorrhagic speck" of pediculosis, 297
Hair, Atrophic changes in, 467
——, Beaded, 468
——, Concretions on, 476
——, Diseases of, 463
——, Greyness of, 468
——, Overgrowth of, 465
Hands, Diagnosis of affections of, 44
Harlequin fœtus, 542
Herpes, 121
—— circinatus bullosus, 100
—— facialis, 122
—— gestationis, 105
—— ——, Treatment of, 174
—— iris, 80
—— irritative, 122
—— ——, Treatment of, 174
—— labialis, 122
—— progenitalis, 123
—— symptomatic, 122
—— zoster, 125
—— ——, Nerve lesions in, 129
—— ——, Treatment of, 174
Hirsuties, 465
——, Electrolysis in, 465
Horny excrescences, 519

Hydradenitis destruens suppurativa, 334
Hydradénome éruptif, 508
Hydroa herpetiforme, 100
—— puerorum, 104
—— vacciniforme, 100
Hydrosis oleosa, 224
Hyperæsthesia, 55
Hyperidrosis, 455
Hysteria in relation to skin lesions, 53

Ichthyosis, 540
—— cornea. (*See* Sclerodermia.)
—— hystrix, 542
—— sebacea cornea, 510
—— simplex, 514
Impetigo contagiosa, 327
—— ——, Parasites in, 329
—— ——, Treatment of, 330
——, Duhring's, 328
—— herpetiformis, 106
—— ——, Treatment of, 172
Inflammation of skin, nature of process, 2
—— —— from abnormal vascular conditions, 6
—— —— from application of irritants, 5
—— —— from disordered nerve action, 6
—— —— from infection by pyogenic organisms, 6
—— —— from retention of secretion, 6
—— ——, Results of, 7
In-growing toe-nail, 478
Inoculable diseases, General, 355, 417
—— ——, Diagnosis of, 36
—— ——, Local, 288
—— —— —— caused by animal parasites, 288
—— —— ——, Diagnosis of, 37
Inoculation Rashes, 202
Iodic eruptions, 189
Iodoform, Eruptions caused by, 192
Iron, Eruptions caused by, 201

Kaposi's disease, 536
Keratodermia erythematosa symmetrica, 77
Keratosis pilaris, 541
Kerion, 310
Koch's postulates, 14

Lacquer poisoning, 180
Lassar's paste, 249
Lead acetate, Eruptions caused by, 201
—— carbonate, Eruptions caused by, 201
Leiomyoma, 488
Lentigo, 512
Leontiasis, 421
Lepocolla repens, 278
Lepothrix, 476
Lèpre vitilige (Gibert). (*See* Sclerodermia.)
Leprosy, 417
——, Anæsthetic, 424
——, Bacillus of, 433
——, Diagnosis of, 433
——, Etiology of, 429
——, Mixed, 428
——, Nerve, 424
——, Nodular, 419
——, Pathology of, 429
——, Prognosis of, 434
——, Skin, 419
——, Treatment of, 434
——, Tubercular, 419
Lesions, Asymmetrical, 27
——, Elementary, 10
——, Evolution of, 28
——, Primary, 10
——, Secondary, 12
——, Symmetrical, 27
Leucodermia, 141
——, Treatment of, 176
Leukoplakia, Syphilitic, 401
Lice. (*See* Pediculi.)
Lichen, 136
—— agrius, 136
—— annulatus, 452
—— circumscriptus, 452
—— gyratus, 452
—— infantum, 462
—— ruber planus, 136
—— —— ——, Acute variety of, 138
—— —— ——, Treatment of, 175
—— scrofulosorum, 358
—— simplex, 136
—— strophulosus. (*See* Miliaria.)
—— tropicus. (*See* "Prickly heat.")
—— urticatus. (*See* Urticaria papulosa.)
—— verrucosus, 138
Lichenisation of the skin, 67
Lupoma, or apple-jelly nodule, 365
Lupus, Disseminated follicular, 346
—— disseminatus, 366
—— erythematoides, 96
—— erythematosus, 90

Lupus erythematosus, aggregatus or disseminatus, 90
—— —— discoides, 90
—— —— not a cutaneous tuberculosis, 94
—— ——, Telangiectic, 90
—— ——, Treatment of, 169
—— ——, —— by chemical caustics, 170
—— ——, —— by linear scarification, 170
—— ——, —— by thermo-cautery, 170
—— exedens, 365
—— hypertrophicus, 367
—— non-exedens, 365
—— papillomatosus, 367
—— serpiginosus, 367
—— verrucosus, 365
—— Vulgaris, 365
—— ——, constitutional remedies in, 385
—— ——, Diagnosis of, 373
—— ——, Differentiation of from lupus erythematosus, 374
—— ——, Distribution of, 367
—— ——, Heredity of, 372
—— ——, Inoculation of, 372
—— ——, Pathology of, 376
—— ——, Prognosis of, 375
—— ——, Pseudo-elephantiasis caused by, 369
—— ——, Pulmonary phthisis associated with, 370
—— ——, Secondary effects of, 369
—— ——, —— tubercular infection from, 370
—— ——, Spontaneous cure of, 368
—— —— terminating in epithelioma, 369
—— ——, Treatment of, 376
—— ——, —— by acid nitrate of mercury, 379
—— ——, —— by arsenical paste, 380
—— ——, —— by bi-chloride of mercury, 378
—— ——, —— by chemical caustics, 379
—— ——, —— by chloride of zinc, 380
—— ——, —— by dog's serum, 387
—— ——, —— by electric cauterisation, 383
—— ——, —— by erasion, 381
—— ——, —— by excision, 381
—— ——, —— by exfoliation of diseased tissues, 377
Lupus Vulgaris, Treatment of by lactic acid, 380
—— ——, —— by multiple puncture, 382
—— ——, —— by nascent sulphurous acid, 378
—— ——, —— by nitrate of silver, 379
—— ——, —— by parasiticide applications, 378
—— ——, —— by pyrogallic acid, 380
—— ——, by salicylic acid, 377
—— ——, —— by scarification, 382
—— ——, —— by simple cauterisation, 383
—— ——, —— by thiosinamin, 387
—— ——, —— by tuberculin, 385
Lymphangiectodes, 498
Lymphangioma cavernosum, 497
—— circumscriptum cutis, 496
—— tuberosum multiplex, 497
Lymphoma simplex, 497

Maculæ ceruleæ (caused by crab lice), 300
Macule, Definition of, 10
Madura foot, 350
Malformations, 540
Mallein in diagnosis and treatment of glanders, 443
Measles rash, 32
Mercury, Eruptions caused by, 196
Micrococci in pus, 15
Micro-organisms in skin affections, 16
Microsporon anomœon, 269
—— furfur, 325
—— minutissimum, 326
Miliaria, 461
—— alba, 461
—— papulosa, 462
—— rubra, 461
Milium, 453
——, Colloid, 507
Mole, 492
Molluscum contagiosum, 506
Monilethrix, 468
Moniliform or beaded hair, 468
Morbid anatomy of the skin, 10
Morphœa, 134
Morvan's disease, 148
Mosquito, the intermediate host of the filaria sanguinis hominis, 354
Mosquitoes, Stings of, 302

Mucous papules, 398
—— patches, 398
—— tubercles, 398
Mustard, Effects of, on the skin, 179
Mycetoma, Madura or fungus foot of India, 350
Mycosis fungoides, 532
Myxœdema, 489
Myxoma, 489

Nævi verrucosi, 492
Nævus lipomatosus, 490
—— pigmentosus, 492
—— pilosus, 492
—— spilus, 492
—— vascularis, 490
Nails, Diagnosis of affections of, 45
——, Diseases of, 478
Nerve disorder, Skin affections dependent on, 48
—— ——, —— ——, Local applications in, 154
—— ——, —— ——, Massage in, 152
—— ——, —— ——, Nerve tonics in, 153
—— ——, —— ——, Sedatives in, 153
—— ——, —— ——, Treatment of, 152
Nerves, Cutaneous, changes in connection with skin eruptions, 52
——, Injuries of, leading to skin lesions, 50
Neurasthenia in relation to skin affections, 53
Neuro-fibromata, 487
Neuroma, 489
New growths, 480
—— ——, Benign, 481
—— ——, Malignant, 521
Nux vomica, Eruptions caused by, 201

Œdema, Acute circumscribed, 149
——, —— ——, Treatment of, 176
——, Hysterical, 53, 150
——, ——, Treatment of, 176
——, Maligiuant, caused by bacilli, 18
—— neonatorum, 544
Œdème bleu des hystériques, 150
Onychauxis, 479
Onychia, 478
—— maligna, 478
Onychogryphosis, 479
Opium, Eruptions caused by, 197
——, Pruritus caused by, 197

Paget's disease, 521
Paper-hangers, Skin eruptions in, 180
Papilloma, 513
—— neuroticum, 542
Papule, Definition of, 11
——, how formed, 5
——, Moist, 398
Paraughi (yaws), 435
Parasites, Animal, in local inoculable diseases, 288
—— infesting skin, 8
——, Vegetable, 303
Paronychia, 478
Pathology of the skin, 1
Pediculi, Varieties of, 296
Pediculosis, 296
——, Distinctive lesion of, 297
Pediculus capitis, 298
—— corporis, 299
—— pubis, 300
Peliosis rheumatica, 88
—— ——, Treatment of, 169
Pellagra, 85
——, Treatment of, 176
Pemphigus, 111
—— foliaceus, 114
—— ——, Treatment of, 173
——, Malignant, 112
—— neonatorum, 113
—— pruriginosus (Hardy), 100
—— vegetans, 115
—— vulgaris, 111
—— ——, Treatment of, 173
Pernio. (*See* Chilblain)
Perspiration, Foul-smelling, 457
Petechiæ, Definition of, 11
Phagedæna, 394
Phagocytosis, 3
Phenacetin, Eruption caused by, 201
Piedra, 477
Pigmentation of skin, how caused, 3
——, Anomalies of, 140
Pinto, carate or "spotted sickness," 347
Pityriasis, 256
——, Contagious form of, 260
—— in new born infants, 259
—— rosea, 268
—— rubra, 257
—— —— pilaris, 264
—— —— ——, identical with lichen ruber acuminatus, 265
—— ——, Primary, 258

Pityriasis rubra, Secondary, 258
—— simplex. (*See* Seborrhœa sicca.)
—— versicolor. (*See* Tinea versicolor.)
Pix liquida, Eruptions caused by, 201
Plica polonica, 298
Podophyllin, Eruptions caused by, 201
"Port-wine mark," 490
"Prickly heat," 462
Protozoa and skin disease, 9
Prurigo, 66
—— ferox, 66
—— mitis, 66
——, Treatment of, 166
Pruritus, 56
——, Diet in, 158
——, External remedies in, 160
—— hiemalis, 57
——, Internal medication in, 159
——, Local varieties of, 57
——, Removal of local causes of, 158
—— opii, 197
—— senilis, 57
——, Treatment of, 157
—— universalis, 56
Psoriasis, 271
——, Diagnosis of, 279
——, Distribution of lesions in, 273
——, Etiology of, 277
——, "Gouty," 277
—— guttata, 272
——, Inoculability of, 278
——, Internal remedies in, 282
—— inveterata, 272
—— linguæ, 401
——, Local treatment of, 284
—— nummularis, 272
—— palmar, in secondary syphilis, 401
——, Pathology of, 279
——, Prognosis of, 282
—— punctata, 272
—— rupioides, 272
——, So-called syphilitic, 408
——, Subjective symptoms in, 275
——, Treatment of, 282
Psorospermosis, Follicular vegetating, 510
Psorosperms in rodent ulcer, 527
Pulex penetrans. (*See* Chigoe.)
Puncta, 88
Purpura, 87
——, Iodic, 191
——, Syphilitic, 398
Pustule, Definition of, 12
——, Malignant, 339
—— ——, Treatment of, 340
Pustules, how formed, 5
——, Umbilication of, 5
Pyococci, 15
——, Secondary infection by, 16
Pyosis, 15

Quinine, Eruptions caused by, 197

Raynaud's disease, 142
—— disease, Treatment of, 176
"Red gum," 462
Reflex irritation, causing skin eruptions, 53
"Reminders," Syphilitic, 401
Rhagades, 13
Rhinoscleroma, 504
Rhus, Skin eruptions caused by, 179
Ringworm, 303
——, Bald, 309
——, Diagnosis of, 312
—— fungus. (*See* Trichophyton.)
—— ——, Prolonged virulence of, 311
—— of nails, 318
——, Tokelau. (*See* Tinea imbricata.)
——, Treatment of, 313
Rodent ulcer, 526
Rosacea, 97
——, Treatment of, 170
Rose spots in enteric fever, 33
Roseola, Syphilitic, 395
Rötheln rash, 32
Rupia, 396

Salicylate of soda, Eruptions caused by, 198
Salicylic acid, Eruptions caused by, 198
Salve muslins, 248
Saprophytes on skin, 19
Sarcoma, Alveolar, 531
——, Lipomatous, 531
——, Melanotic, 531
—— of the skin, 528
Sarcoptes scabiei. (*See* Acarus.)
Scabies, 289
——, Secondary lesions in, 291
——, Treatment of, 294
Scabs, Formation of, 13
Scales, Formation of, 13
Scalp, Diagnosis of affections of, 40
Scarlatina, diagnosis from erythema scarlatiniforme, 74
—— rash, 31

Scars, 13
Sclerema neonatorum, 544
Sclerodermia, 132
——, Treatment of, 174
Scrofula, General characteristics of, 356
——, its relation to tubercle, 355
Scrofulodermia, 356
Sebaceous cysts, 481
Seborrhœa, 444
—— corporis, 451
—— oleosa, 444
—— papulosa, 451
—— sicca, 444
——, Treatment of, 449
Sensory neuroses of the skin, 55
Shingles. (*See* Herpes Zoster.)
Silver, nitrate of, Eruptions caused by, 199
Skin-glands, Diseases of, 444
Smallpox eruption, 33
Snuffles in hereditary syphilis, 404
Sores, Hard, 391
——, Soft, 393
Spinal cord, Lesions of, in relation to skin affections, 50
Sporozoa in cancerous tumours, 9
—— in cutaneous epithelioma, 526
"Spotted sickness." (*See* Pinto.)
Squamæ. (*See* Scales.)
Staphylococcus pyogenes aureus, 15
—— —— albus, 15
—— —— citreus, 15
Sticks, Medicated, 249
Stramonium, Eruptions caused by, 202
Streptococcus pyogenes, 15
Striæ, 146
Strophulus, 462
Strumous ulcers. (*See* Ulcers.)
Strychnia, Eruptions caused by, 201
Sudamina, 461
Sulphonal, Eruptions caused by, 202
Sulphur, Eruptions caused by, 202
"Summer eruption," 100
Sunburn, 71
Suppuration, Natural, 15
Sweat, Bloody, 459
——, Coloured, 458
——, Foul-smelling, 457
Sweating, Phosphorescent, 460
Sycosis, 330
——, Contagiousness of, 331
——, Treatment of, 332
Sycosis cadique de Bazin, 200
—— *lupoïde*, of Brocq, 331
Syphilides, Macular, 396
——, Maculo-papular, 396
——, Papular, 397
——, Pustular, 408
——, Squamous, 407
Syphilis, 388
——, Acquired, 388
—— a special exanthematous fever, 389
——, Bacilli in, 410
——, Diagnosis of, 406
——, Double inoculation in, 393
——, Duration of infectivity of, 401
——, Fever in, 395
——, Gummata in, 403
——, Hereditary, 404
—— ——, Diagnosis of, 409
—— ——, Physiognomical characters of, 409
—— ——, Treatment of, 414
——, "Intermediate" lesions in, 401
——, Micrococci in, 410
——, Pathology of, 410
——, Phagedæna in, 394
——, Primary lesion in, 390
——, Prognosis of, 410
——, Rashes in, 395
——, Roseola in, 395
——, Secondary lesions in, 399
——, Stages in, 389
——, Tertiary lesions in, 403
—— ——, Treatment of, 413
——, Treatment of, 411
—— —— by blue pill, 411
—— —— by intramuscular injection of perchloride of mercury, 412
—— —— by iodide of potassium, 414
—— —— by mercurial inunction, 413
Syringomyelia, 148

Tanners, Skin eruptions in, 180
Tar, Eruptions caused by, 201
Teignes, Alibert's, 20
Telangiectasis, 490
Terebene, Eruptions caused by, 202
Tinea barbæ, 316
—— circinata, 307
—— decalvans, 309
—— imbricata, 319
—— nodosa, 477
—— sycosis. (*See* Tinea barbæ.)
—— tonsurans, 308
—— versicolor, 324

Trade eruptions. (*See* Eruptions.)
Trichophyton, Experimental cultures of, 305
—— megalosporon, 306
—— microsporon, 305
——, Sabouraud's researches on, 305
——, the fungus of ringworm, 303
——, Two types of, 305
Trichorrhexis nodosa, 467
Tubercle, Anatomical element of, 357
—— as an elementary lesion, 11
—— bacillus, 357
——, its relation to scrofula, 355
Tubercular ulcers. (*See* Ulcers.)
Tuberculin eruption, 205
Tuberculosis, 357
—— verrucosa cutis, 365
Tumour, Definition of, 12
Turpentine, Eruptions caused by, 202
Tylosis, 543
Typhoid fever. (*See* Enteric fever.)
Typhus rash, 34

Ulcer, Crateriform, 524
——, perforating of foot, 147
——, Rodent, 525
Ulceration, 5
Ulcers, 13
——, Strumous, 361
——, Syphilitic, 403
——, Trophic, 147
——, Tubercular, 363
Umbilication of vesicles and pustules, 5
Uridrosis, 460
Urticaria, 59
—— bullosa, 62
—— chronic, 60
—— factitia, 61
—— fugax, 60
—— gangrenous, 54
—— gigas, 62
—— hæmorrhagic, 62
—— œdematosa, 61
—— of mucous membrane, 60
—— paludal, 62
Urticaria papulosa, 61
——perstans, 60
——, Treatment of, 164
—— pigmentosa, 64
—— ——, Treatment of, 166

Vaccination eruptions, 203
——, Leprosy transmitted by, 205
——, Syphilis transmitted by, 205
"Vagabond's Skin," 297
Varicella. (*See* Chickenpox.)
Variola. (*See* Smallpox.)
Vaso-motor disturbance and skin lesions, 54
Verruca acuminata, 516
—— digitata, 515
—— filiformis, 515
—— necrogenica or *post-mortem* wart, 364
—— plana, 514
—— seborrhoica, 515
Vesicle, Definition of, 12
Vesicles, how formed, 5
——, Umbilication of, 5
Vibices, Definition of, 11
Vitiligo. (*See* Leucodermia.)

Wart, *Post-mortem*, 364
Warts, 514
——, Venereal, 516
Warty degeneration of skin, 497
Washerwomen, Skin eruptions in, 180
Wheal, Definition of, 12
Whitlow, 478

Xanthoma, 499
—— diabeticorum, 502
——, Histology of, 503
—— of Balzer, 501
—— planum, 499
—— tuberosum, 499
Xanthôme en tumeurs, 499
Xeroderma pigmentosum, 536
Xerodermia, 541

Yaws, 435
——, treatment, 440

Zona. (*See* Herpes Zoster.)

THE END.

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